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Summary Report 1987

Doctorate Recipients From United States Universities

HIGHLIGHTS

Characteristics of Doctorates

- In fiscal year 1987, 32,278 Ph.D.s were graduated from U.S. universities, only 562 more graduates than in 1977. While the size of the classes were comparable, the characteristics were quite changed; there were 2,200 more minorities (mostly Asians), 2,300 more foreign citizens, and 3,500 more women in 1987 than in 1977.

- Among the underrepresented groups of U.S. and permanent resident Ph.D.s, American Indians and Hispanics have been slowly growing over the last decade, the former going from 0.3 percent of the cohort to 0.5 percent; the latter going from 1.8 percent to 3.0 percent. Conversely, blacks among this group have declined from 4.5 percent in 1977 to 3.8 percent in 1987.

- The number of non-U.S. recipients increased in nearly every field, particularly in engineering and the physical sciences. However, a sizable number planned to remain in the United States after graduation. Over 75 percent of permanent residents with definite postgraduation commitments planned to stay--53 percent to be employed and 24 percent to take postdoctoral study appointments. Nearly 48 percent of temporary residents with definite commitments intended to remain in the United States--23 percent with employment plans and 25 percent with study plans.

- Until 1987, the number and proportion of women doctorates increased every year since the survey began. This year, however, while the number of women did inch to a peak of 11,370, the proportion of women did not grow. Instead women stalled at 35 percent of the cohort. Among U.S. citizens, women's proportion also stalled--at 41 percent. Despite gains in certain fields, women sometimes remained seriously underrepresented.

Financial Support

- The largest source of financial support in graduate school was recipients' own earnings, which accounted for 24 percent of total support in all fields combined. The next largest sources overall were teaching assistantships and university-related research assistantships. Field differences were pronounced--e.g., 7 percent of support came from own earnings for physical scientists, versus 51 percent for education doctorates.

- More than half (54 percent) of the respondents to a new questionnaire item indicated that they had no educational debt at the time of graduation. Among those reporting debt, the median level was $7,112. Variation was evident by field and demographic group.

- For those with definite employment plans after graduation, the percentage entering academe or government dropped while the percentage joining industry or becoming self-employed grew during the 1977-1987 period. Again, variation was evident by field and demographic group, with academic decline steepest for social scientists and Hispanics.

Time-to-Degree

- Two measures of time from baccalaureate to doctorate are registered time and total time. By either dimension, time-to-degree has increased approximately 30 percent over the last 20 years, though disaggregated data show that the increases have not been steady and have varied noticeably.

- Time-to-degree was shorter than average in the natural sciences and engineering, and longer than average in the non-sciences. The shortest median registered time in 1987 was 5.8 years, in engineering; the longest was 8.4 years, in humanities. The shortest median total time was in physical sciences--7.4 years; the longest was in education--16.2 years.

- The various support mechanisms may influence the length of time it takes to earn a doctorate. The shortest time lapses generally were associated with fellowship support and research and teaching assistantships. Recipients whose primary support came from their own earnings almost always had the longest time lapses. Whether the associations are causal remains inconclusive.

- Not surprisingly, time lapse was elongated for recipients who switched fields of study between baccalaureate and Ph.D. The largest difference was for doctorate recipients in the social sciences, where the median total time-to-degree was four years longer for field-switchers than for doctorates who remained in the same field.

- Differences in time-to-degree among the demographic groups were also evidenced, although they were moderated when field was held constant. For example, women generally had longer time lapses than men, but the gap in registered time was closed when examined field by field. Although the gap also narrowed in total time-to-degree, gender differences remained, possibly influenced by sources of support.

- Temporary residents had shorter time lapses than U.S. citizens in the social sciences and non-sciences, which may have been associated with their student-visa requirements. However, U.S. citizens had shorter total completion times in the natural sciences and engineering, which may have been related to the older age of foreign students at doctorate enrollment.

- Holding field constant, differences in time-to-degree were mitigated among the racial groups. Blacks, however, still experienced lengthy completion times--especially relative to whites--in every field except engineering. No black engineers reported primary reliance on personal support, which may have been a factor in hastening their completion times.

Summary Report 1987

Doctorate Recipients From United States Universities

The Survey of Earned Doctorates is conducted
for the National Science Foundation,
U.S. Department of Education,
National Institutes of Health,
National Endowment for the Humanities
U.S. Department of Agriculture

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This report has been reviewed by a group of persons other than the author according to procedures approved by a Report Review Committee consisting of members of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Frank Press is president of the National Academy of Sciences.

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This report is based on research conducted by OSEP, with the support of the National Science Foundation, the U.S. Department of Education, the National Institutes of Health, the National Endowment for the Humanities, and the U.S. Department of Agriculture under NSF Contract No. SRS-8517008. Opinions, findings, conclusions, or recommendations expressed in this publication are those of OSEP and do not necessarily reflect the view of the sponsoring agencies.

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PREFACE

This report presents a brief summary of the results of the 1986-87 Survey of Earned Doctorates (SED), which has been conducted each year since 1958 by the National Research Council's Office of Scientific and Engineering Personnel (OSEP) and its predecessor organization, the Commission on Human Resources. Questionnaire forms, distributed with the cooperation of the graduate deans of U.S. universities, are filled in by graduates as they complete all requirements for their doctoral degrees. The doctorates reported here were earned during the period July 1, 1986, through June 30, 1987, and include research and applied-research doctorates in all fields. Professional degrees such as the M.D., D.D.S., O.D., D.V.M., and J.D. are not covered by this survey. A full list of degrees included can be found on the inside back cover. For convenience throughout this report, "Ph.D." is used to represent any of the doctorate degrees covered by the survey.

Responses were received from 29,991, or 93 percent, of the 32,278 persons who earned doctorates in fiscal year 1987. When individuals did not complete the questionnaire, abbreviated records were compiled using information from the universities' commencement bulletins. As a result, basic information--such as gender, field, institution, and year of Ph.D.--is available for all of the 32,278 doctorate recipients.

This Summary Report is the twenty-first in an annual series of reports that began in 1967. Trend data from earlier periods can be found in the book *Century of Doctorates: Data Analyses of Growth and Change* (National Academy of Sciences, 1978). All survey responses become part of the Doctorate Records File (DRF), a virtually complete data bank on doctorate recipients from 1920 to 1987. More than 85 percent of the 882,897 records now in the DRF have come from results of the 1958-1987 surveys. For doctorates granted during the 1920-1957 period, information was compiled from commencement bulletins, registrars' records, and other published material.

The conduct of the SED, the maintenance of the resulting data file, and the publication of this report are funded jointly by the National Science Foundation, the National Institutes of Health, the U.S. Department of Education, the National Endowment for the Humanities, and the U.S. Department of Agriculture. OSEP thanks these agencies for their support. The interest, aid, and counsel of Susan Hill (NSF), the project officer for the agencies, are appreciated. In addition, Mary Golladay of the National Science Foundation, Charles Sherman of the National Institutes of Health, Jeffrey Thomas of the National Endowment for the Humanities, Leo Eiden of the U.S. Department of Education, and K. Jane Coulter and Marge Stanton of the U.S. Department of Agriculture have provided constructive reviews of the design and analysis of the survey, a contribution that increases its relevance to national policy issues. We also express deep thanks to the graduate deans in the doctorate-granting institutions for their continuing interest in and assistance to this project.

The FY1987 SED was conducted under the administrative supervision of Susan Coyle; she and Delores Thurgood are jointly responsible for the development of the report. Yupin Bae produced the report's graphics. Special appreciation goes to Eileen Milner, who supervised the coding and editing of the data; to George Boyce, manager of OSEP's Data Processing Section; to Joseph Finan and Maren Herman, who were responsible for the computer programming and processing; to Dorothy Cooper and Dan Pasquini, who were responsible for the production of the manuscript; and to Linda Dix, OSEP's reports officer, who edited it.

OSEP is concerned with those activities of the National Research Council that contribute to the more effective development and utilization of the nation's scholars and research personnel. Its programs seek to strengthen higher education and to develop better understanding of the education process. It is hoped that reporting of the present data to education institutions, government agencies, and professional societies will facilitate planning in higher education. Suggestions for improvement of the content or format of the report, other comments, and questions are welcome.

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INTRODUCTION

In fiscal year 1987, 32,278 doctorate students graduated from U.S. colleges and universities--only 562 more Ph.D.s than 10 years earlier. Although the numbers did not change substantially, the characteristics of the doctorates did. In 1987 there were 2,200 more minorities (mostly Asians), 2,300 more non-U.S. citizens (mostly temporary residents), and 3,500 more women recipients than in 1977. The median age of doctorate recipients was two years older in 1987. The percentage intending postdoctoral study increased, while the percentage planning employment declined. Fewer recipients planned teaching as their primary work activity, and more planned to work in research and development or to provide professional services.

Selected statistics from the 1987 Survey of Earned Doctorates (SED) are presented in this report, along with trend data from the comprehensive Doctorate Records File. Much of the 1987 data are displayed in the series of tables constituting Appendix A, and 1977-1987 fine-field data are displayed in Appendix B. The body of the report highlights a selected portion of these data.

In recent years, summary reports have included special sections that emphasized certain of the data collected. This year's special section focuses on the length of time it takes to earn a doctorate degree. Two time measures are applied: "registered time" and "total time." By each of these measures, the time from baccalaureate to doctorate has been increasing over the last 20 years; however, the amount of time and the size of the increase have varied substantially by field of Ph.D. For example, the length of time and the proportionate increase were noticeably greater in the social sciences and non-sciences than in the natural sciences and engineering. Time-to-degree will be discussed by broad field of doctorate; primary sources of support; field-switching between baccalaureate and doctorate; postgraduation plans; and demographic characteristics of recipients such as gender, race, and citizenship.

Last year's special section focused on field differences. The seven broad fields that are typically profiled in these reports were broken out into 30 cluster fields. Recipients' demographic variables, sources of support, time-to-degree, and postgraduation plans were examined. Between-field comparisons and within-field contrasts emerged from the finer level of disaggregation.

Other recent reports highlighted American women and minority doctorates, especially their field selections, support mechanisms, times-to-degree, and employment sectors (1985), and U.S. baccalaureate sources of Ph.D.s , measured by absolute numbers of doctorates and by numbers relative to the size of their baccalaureate cohorts (1984).

TRENDS IN THE NUMBER OF DOCTORATES

In the 1987 fiscal year, 32,278 Ph.D.s were graduated from U.S. colleges and universities; this year, as in 1986, the number of doctorates earned was on the increase. These recent additions may be signaling the start of a renewed rise in Ph.D.s after a plateau that characterized the first half of the 1980s. As seen in Figure 1 and Table A, the number of Ph.D.s had its initial and rapid rise in the 1960s, peaking in 1973. Thereafter, a decline occurred through 1978. Since that time, the number of Ph.D.s stabilized at a figure of about 31,200 annually, but the last two years of data may portend a return to growth in the number of doctorates.

Between 1960 and 1987, the number of doctorates more than tripled, going from 9,733 to 32,278. However, not all groups of recipients changed at the same rates. For example, non-U.S. citizens increased sixfold, going from 1,176 in 1960 to 7,163 in 1987, and women increased nearly elevenfold, from 1,042 recipients in 1960 to 11,370 in this fiscal year.

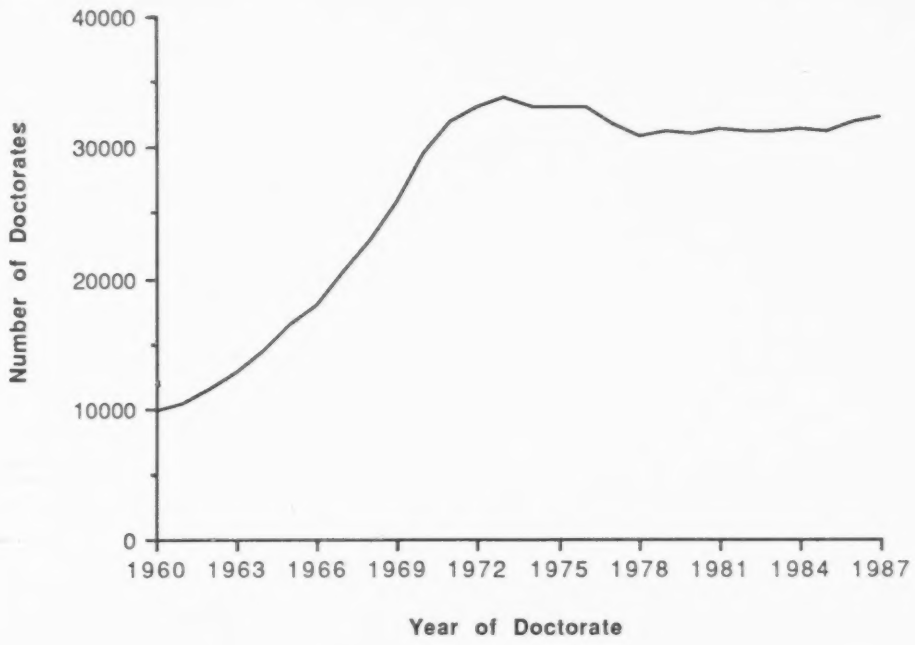

Figure 1. Doctorates awarded by U.S. colleges and universities, 1960-1987.

TABLE A: Doctorates Awarded by U.S. Colleges and Universities, 1960-1987

Year	Number	Year	Number	Year	Number	Year	Number
1960	9,733	1967	20,403	1974	33,047	1981	31,357
1961	10,413	1968	22,936	1975	32,951	1982	31,105
1962	11,500	1969	25,743	1976	32,946	1983	31,240
1963	12,728	1970	29,498	1977	31,716	1984	31,301
1964	14,325	1971	31,867	1978	30,875	1985	31,243
1965	16,340	1972	33,041	1979	31,239	1986	31,843
1966	17,949	1973	33,755	1980	31,020	1987	32,278

Field Trends

Different rates of change were also evidenced within the various doctorate fields. Figure 2 shows the curves of change in the seven broad fields (the figure is displayed in two parts in order to disentangle crossing trend lines). Perhaps the curve most similar to that of Figure 1 is the life sciences curve. Like the overall trend, doctorates in life sciences also peaked in the early 1970s, then declined slightly, and finally stabilized. In the early 1980s the field grew again slightly, peaking at 5,776 recipients in 1985. The total in 1987--5,742--is virtually the same. Note that "life sciences" is an umbrella term that covers the biological sciences, agricultural sciences, and health sciences. Since the umbrella field began growing in the 1980s, there has been virtually no change in the number of new biological scientists and only modest growth in the number of agricultural scientists. Instead, the field driving the increase was health sciences, which was fueled by a tremendous growth in nursing Ph.D.s.

The broad fields of physical sciences and engineering showed different trends. Both peaked in the early 1970s and declined to the latter part of the decade; but instead of maintaining a plateau--as the overall trend would indicate--they began climbing in the 1980s. The number of physical sciences degrees in 1987--5,027--still has a way to go before re-achieving the peak set in 1971--5,739; however, the trend is upward. Engineering had 3,716 recipients in 1987, an all-time high (the previous peak was 3,503 Ph.D.s in 1972), so its curve is unique.

As in the overall cohort, the specific characteristics of recipients in these two fields have been changing dramatically. In 1971, about 80 percent of new physical scientists and 70 percent of new engineers were U.S. citizens. In 1987, the U.S. percentages were 65.1 and 41.8, respectively. Other types of changes were in the number of specialists within these fields. For example, within physical sciences, the number of mathematics Ph.D.s peaked in 1972 at 1,281; by 1987 only 740 such Ph.D.s were awarded, a decrease of over 42 percent. Half of the mathematics doctorates were awarded to non-U.S. citizens.

Both social sciences and education reached their peak number of doctorate recipients in 1976; both have declined since then, education at the more precipitous rate. In 1976, there were 6,214 new social scientists, and in 1987 there were 5,718, a decline of 8 percent. Most of the decrease was in two specialities: political science (668 Ph.D.s in 1976 and 405 in 1987) and sociology (734 Ph.D.s in 1976 and 423 in 1987). Education's peak number of doctorates was 7,725, but this number dropped 16.5 percent to 6,447 in 1987.

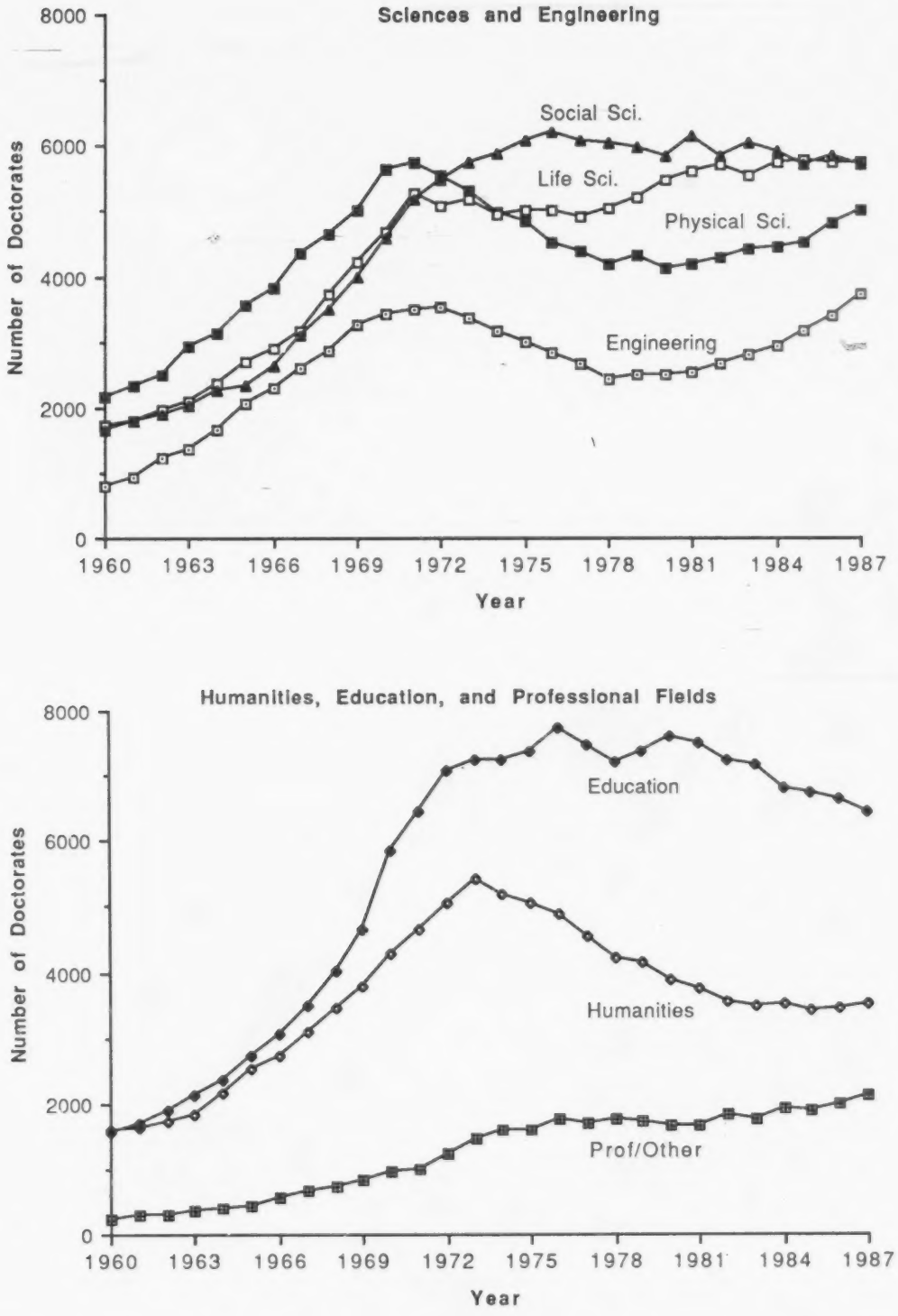

Figure 2. Number of doctorate recipients, by broad field, 1960-1987.

Humanities is another field that has undergone a decrease, but its movement seems to have stabilized. It has not shown the recovery that the physical sciences and engineering have, but, unlike social sciences and education, the decline does seem to have been stemmed. The number of doctorates peaked at 5,414 in 1973; in 1987, there were 3,504. This number has been relatively stable for the last 6 years.

Professional fields is the one broad area in which growth has occurred in most years since 1960. The number of recipients in these fields has steadily ratcheted upward from 241 recipients to 2,124 in 1987, a ninefold increase. Most of the growth in the last decade has been in business administration, although the numbers in social work and theology have been increasing as well.

Another area of interest in terms of numbers of doctorates is the identification of the largest doctorate-granting institutions and the largest programs by field. As Table B shows, the five schools granting the greatest number of doctorates in the 1983-1987 period

TABLE B: Leading Institutions Awarding Ph.D.s, by Field of Doctorate, 1983-1987

Institution	Number	Institution	Number
Total All Fields		Social Sciences	
Univ of California-Berkeley	3,563	University of Michigan	602
Univ of Wisconsin-Madison	3,164	Univ of California-Berkeley	545
University of Michigan	2,999	Univ of Wisconsin-Madison	488
University of Illinois-Urbana	2,920	U.S. International University	485
Ohio State University	2,696	Columbia University	450
Physical Sciences		Humanities	
Univ of California-Berkeley	846	University of Michigan	537
Massachusetts Inst. Technology	690	Indiana University-Bloomington	488
Univ of Wisconsin-Madison	584	Univ of California-Berkeley	487
University of Illinois-Urbana	581	Yale University	458
Stanford University	539	Harvard University	456
Engineering		Education	
Massachusetts Inst. Technology	905	Columbia Univ-Teachers College	1,092
Stanford University	743	Nova University	900
Univ of California-Berkeley	708	University of Pittsburgh	740
University of Illinois-Urbana	546	Ohio State University	688
Purdue University	487	Temple University	677
Life Sciences		Professional Fields	
Univ of California-Davis	726	Univ of Southern California	270
Univ of Wisconsin-Madison	724	Ohio State University	232
University of Minnesota	704	University of Texas-Austin	226
Univ of California-Berkeley	627	University of Pennsylvania	208
Cornell University	624	Univ of Wisconsin-Madison	196

were the University of California-Berkeley (3,563); the University of Wisconsin-Madison (3,164); the University of Michigan (2,999); the University of Illinois-Urbana (2,920); and Ohio State University (2,696). Thus, large public institutions, particularly in the Midwest, were a major locus of doctoral preparation.

Looking at doctoral preparation figures across fields for the 5-year period, these universities remained high producers, but specialized and private institutions emerged in certain subject areas. In the physical sciences, MIT and Stanford University were among the top five. The largest engineering Ph.D. programs included MIT, Stanford, and Purdue. In the life sciences, although large state schools such as the University of California at Davis and the University of Wisconsin figured predominately, Cornell was among those with the largest programs. For social sciences, the top five included the U.S. International University and Columbia. Top humanities schools included Yale and Harvard, and schools preparing the most education doctorates included Columbia University-Teachers College, Nova University, and Temple University. Schools producing the most doctorates in professional fields included the University of Southern California and the University of Pennsylvania.

A finer field breakout showing the numbers of doctorates completed at each school in 1987 is given in Appendix A, Table 6. These data confirm that land-grant and state universities in all 50 states are the locus of large and vigorous doctoral programs across fields. Among these, some seem to have established special centers for a field or discipline. For example, the University of Kansas graduated a relatively large number of psychology Ph.D.s. in 1987 (47 out of a total of 216). Private institutions, however, excelled over larger state schools in some fields. Yale and Princeton, for example, specialized in producing doctorates in the humanities, and, unsurprisingly, Teachers College at Columbia University led the field of universities graduating education doctorates in 1987.

Citizenship Status

Overall, the percentage of foreign doctorate recipients has increased between 1960 and 1987 (see Figure 3 and Table C). In 1962, 85.6 percent (9,841) of doctorates were earned by U.S citizens and 13.2 percent by non-U.S. citizens; by 1987, the percentage for U.S. citizens had dropped 15 points, to 70.8 percent, with 22,863 U.S. citizen Ph.D.s vs. 7,163 Ph.D.s of foreign nationality. The percentage of non-U.S. Ph.D.s increased slowly over the 1962-1977 period and then began to rise at a steeper rate when the number of U.S. Ph.D.s began to decline. The sharpest increase in foreign Ph.D.s occurred during the most recent 5-year interval, between 1982 and 1987.

When non-U.S. citizens are broken down into categories indicating permanent visa and temporary visa status, it can be seen that most of the recent increase has occurred among those with temporary visas. The proportion of permanent-resident Ph.D.s has risen from 2.4 percent to 4.9 percent of the total from 1962 to 1987, but within that period the proportion fluctuated and actually dropped from its high in the early 1970s. The proportion of temporary-resident Ph.D.s, on the other hand, has risen from 10.8 percent to 17.3 percent from 1962 to 1987. The rise has been steady except for a small drop in the early 1970s.

While both the numbers and proportions of foreign students have generally increased over the past 25 years, the trend has been much more marked in some fields than in others. By far the largest increase has occurred in the areas of the physical sciences and engineering, where the proportion of foreign recipients more than doubled over the period, albeit with some fluctuations in intervening years. In contrast, non-U.S. Ph.D.s in the life

sciences, social sciences, and professional fields showed patterns of moderately slow upward growth following downward fluctuations in the early 1970s. The numbers and percentages of foreign doctorates in the humanities remained small in comparison to engineering and the natural sciences. Smaller still was the proportion of foreign Ph.D.s in education, where fewer than 10 percent of the 1987 recipients reported non-U.S. citizenship.

The sharp rise in the number of Ph.D.s earned by temporary residents could indicate that developing countries are encouraging doctoral study in the United States in order to further educational progress at home in certain areas, since many of these individuals will eventually return to their country of origin. Nonetheless, a sizable number of those earning degrees in the physical sciences and engineering plan to remain in the United States after graduation, at least temporarily.

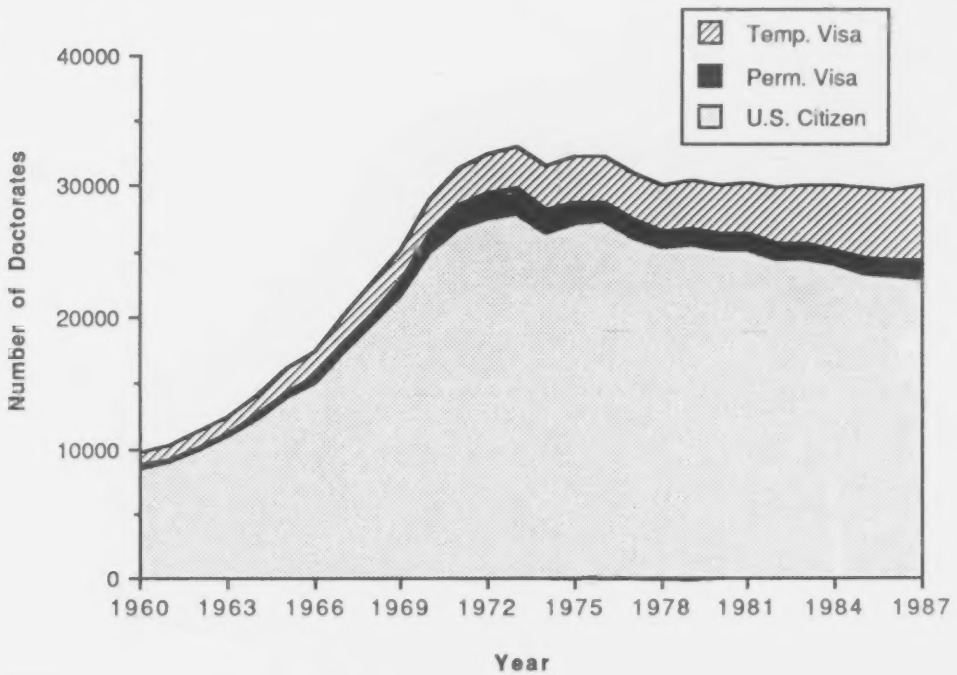

Figure 3. Citizenship composition of doctoral cohorts, 1960-1987.

TABLE C: Percentage Distribution of Doctorate Recipients, by Citizenship and Broad Field, 1962-1987*

Field	Year of Doctorate					
	1962	1967	1972	1977	1982	1987
Total All Fields						
U.S. Citizens	85.6	83.5	83.2	82.4	78.4	70.8
Permanent Residents	2.4	4.3	6.3	4.3	3.9	4.9
Temporary Residents	10.8	10.0	8.6	10.9	13.5	17.3
Physical Sciences						
U.S. Citizens	84.8	81.7	79.3	76.4	72.7	61.4
Permanent Residents	2.2	4.5	8.0	6.1	4.7	5.1
Temporary Residents	11.9	11.7	11.2	15.4	19.5	27.1
Engineering						
U.S. Citizens	76.5	74.0	66.5	55.7	44.2	41.8
Permanent Residents	4.9	8.8	17.8	12.3	11.2	9.5
Temporary Residents	17.9	15.7	14.8	29.2	38.9	41.2
Life Sciences						
U.S. Citizens	79.8	78.1	78.5	79.1	80.7	73.5
Permanent Residents	2.7	4.2	7.2	4.9	3.2	4.5
Temporary Residents	16.7	16.3	12.4	13.6	13.1	16.0
Social Sciences						
U.S. Citizens	85.4	84.0	84.9	85.3	82.2	76.1
Permanent Residents	2.1	4.4	4.6	3.1	3.4	4.3
Temporary Residents	10.5	9.0	8.4	8.9	9.2	11.4
Humanities						
U.S. Citizens	90.7	88.6	89.6	88.8	84.9	78.0
Permanent Residents	2.4	3.7	4.3	3.5	3.9	5.0
Temporary Residents	4.6	4.6	4.1	4.7	6.3	9.3
Education						
U.S. Citizens	94.5	93.8	93.2	91.1	86.6	84.9
Permanent Residents	0.8	1.1	1.8	1.4	2.0	2.7
Temporary Residents	4.3	3.6	4.0	5.1	7.9	6.5
Professional/Other Fields						
U.S. Citizens	82.5	77.8	81.7	82.1	76.5	68.2
Permanent Residents	2.2	4.9	5.2	4.5	3.7	5.3
Temporary Residents	13.3	11.6	9.4	11.3	14.0	18.2

* Details do not add to 100 percent where citizenship is unknown.

Just as the percentage of non-U.S. citizen Ph.D.s. varied by field, so did their planned postdoctoral location. Table D gives an overview of plans by visa status and field (percentages are based on those with definite employment or study plans and excludes the sizable number of recipients whose plan status was "seeking" when they completed the SED). Over 75 percent of permanent-resident Ph.D.s with definite postgraduation plans intended to locate in this country (52.7 percent for employment and 24.2 percent for postdoctoral study). Another 11.2 percent of this group had definite employment plans outside the United States, and 2.6 percent had postdoctoral fellowships abroad, for a total of 13.8 percent planning to leave the United States. For temporary residents, the percentage with postgraduation employment plans in this country was understandably lower, about 22.7 percent. However, 25.2 percent planned to pursue postdoctoral studies here, so a total of nearly 48 percent planned to remain in the United States after graduation, at least temporarily. More than 42 percent of temporary residents intended to leave the United States (36.4 percent for employment and 6.1 percent for postdoctoral study). (These figures compare with a total of 91.2 percent of U.S. citizens with definite postgraduation plans in this country--70.1 percent for jobs and 21.1 percent for study, with an additional 2.4 percent planning jobs or study outside the United States.)

Variations in postdoctoral plans occurred across fields. The largest percentage of temporary residents with definite plans to remain in this country after graduation was in the physical sciences--64.6 percent: of this group, only 19.6 percent had work commitments, while 45.0 percent had study appointments. In contrast, somewhat smaller percentages of engineering Ph.D.s had U.S. commitments (53.4 percent), but more of these were work commitments (32.5 percent). Even larger percentages of temporary residents in the humanities and professional fields had definite job commitments in the United States, but far fewer had study commitments in these fields.

TABLE D: Percentage of Non-U.S. Doctorate Recipients with Firm Postgraduation Commitments, by Broad Field, Visa Status, and Intended Location, 1987*

	Permanent Visas				Temporary Visas			
	U.S. Loc.		Foreign Loc.		U.S. Loc.		Foreign Loc.	
Field	Empl.	Study	Empl.	Study	Empl.	Study	Empl.	Study
Total All Fields	52.7	24.2	11.2	2.6	22.7	25.2	36.4	6.1
Physical Sciences	40.1	42.0	6.4	5.7	19.6	45.0	18.0	8.2
Engineering	68.7	13.7	5.5	0.0	32.5	20.9	32.2	3.2
Life Sciences	17.8	57.9	9.9	3.9	5.1	37.8	42.5	6.8
Social Sciences	58.5	11.4	15.4	3.3	28.8	9.7	46.8	7.9
Humanities	72.9	7.3	8.3	1.0	33.8	3.0	47.8	6.0
Education	51.5	0.0	35.3	2.9	7.1	1.2	67.5	7.1
Professional/Other	75.6	9.0	12.8	0.0	42.1	2.5	45.3	2.9

* Details do not add to 100 percent where location is unknown.

In terms of nationality and geographic region of origin, the composition of the foreign-citizen Ph.D. pool has changed substantially over the last decade. Table E displays the 30 countries supplying the largest number of non-U.S. citizen Ph.D.s from 1977-1987. While traditional exchange points in western and northern Europe (England, France, Germany) remain on the list, developing countries in the Americas, the Middle East, and the Far East have increased in proportionate numbers of Ph.D.s. In fact, the list is dominated by Asian countries. Among the top 30, 8 countries are located in Eastern Asia and 8 more in Western Asia or the Middle East. Five of the top producers were American; four were European; three were from Australasia; and two were of the African continent.

The country sending most of the students has been Taiwan, which doubled its annual number of Ph.D.s at U.S. schools over the last 10 years, from 413 in 1977 to 856 in 1987, for a cumulative total of 6,459. The second-largest supplier, India, fluctuated over the decade; the number of recipients increased somewhat, from 474 in 1977 to 599 in 1987, but India still fell in terms of proportion of foreign Ph.D.s supplied. The third country on the list--Canada--continued to send a large number of students (3,376), but the annual

TABLE E: Leading Countries of Origin of Non-U.S. Citizens Earning Doctorates at U.S. Colleges and Universities, 1977-1987

	Country	Number		Country	Number
1.	Taiwan, Republic of China	6,459	16.	Turkey	903
2.	India	5,273	17.	Greece	902
3.	Canada	3,376	18.	Saudi Arabia	790
4.	Republic of Korea*	3,238	19.	West Germany**	735
5.	Iran	2,840	20.	Malaysia	621
6.	Nigeria	1,977	21.	The Philippines	619
7.	Thailand	1,740	22.	Jordan	617
8.	England	1,598	23.	France	608
9.	Brazil	1,493	24.	Venezuela	594
10.	Israel	1,258	25.	People's Republic of China	587
11.	Japan	1,228	26.	China, Unspecified***	549
12.	Arab Republic of Egypt	1,169	27.	Pakistan	531
13.	Hong Kong	1,153	28.	Chile	489
14.	Mexico	987	29.	Indonesia	482
15.	Australia	915	30.	Iraq	439

* Includes "Korea, Unspecified." The Democratic People's Republic of Korea (North Korea) does not permit any of its citizens to study in the United States.

** Includes "Germany, Unspecified." The German Democratic Republic (East Germany) does allow exchange students in the United States for partial preparation toward the Ph.D., but the degree is subsequently awarded by the home country institution. Virtually all German recipients of U.S. Ph.D.s are West German.

*** The citizenship of these recipients is unclear. However, it can be assumed that virtually all of the pre-1980 recipients are of Taiwanese citizenship because the People's Republic of China did not permit its citizens to study in the United States until after the Cultural Revolution.

supply remained relatively static over the decade. Canada, a steady supplier of Ph.D. students due to proximity and easy visa requirements, actually experienced a decrease from 355 in 1977 to 313 in 1987; as a result, its proportion of foreign Ph.D.s was nearly halved from 8.8 percent in 1977.

Note a special circumstance with the People's Republic of China (PRC). This country ranked 25th on the list of countries of origin from 1977 through 1987. However, in 1987 alone, the PRC ranked 5th. As the note to Table E indicates, students from the PRC only recently began to earn degrees in the United States, but their numbers are burgeoning.

Table F displays the top 10 institutions educating foreign doctorate recipients over the 5-year period, 1983-1987. The first set of columns lists the institutions with the largest number of non-U.S. doctorates and shows the foreign percentage graduated from each school. All of the institutions listed had large doctorate-granting programs; 7 of the 10 were public institutions. Additionally, all of them appeared on the field lists of the largest institutional producers of Ph.D.s (see Table B, page 5). The second set of columns lists the 10 institutions with the highest ratios of foreign to U.S. recipients. The percentage of foreign doctorates at Lamar University in Texas, for example, was 88.2 percent--15 out of 17 graduates. Note that many of the programs listed in the second column set were small: 9 graduated 50 or fewer doctorates per year in 1983-1987. Half were publicly controlled.

TABLE F: Leading Institutions Awarding Ph.D.s to Non-U.S. Citizens, 1983-1987

Ranked on Number of Foreign Doctorates				Ranked on Percentage of Foreign Doctorates			
Institution	Foreign Ph.D.s	Total* Ph.D.s	%	Institution	Foreign Ph.D.s	Total* Ph.D.s	%
U of Ill-Urbana	802	2,675	30.0	Lamar Univ	15	17	88.2
U of Wis-Madison	752	2,954	25.5	Tennessee Tech U	20	23	87.0
U of Cal-Berkeley	752	3,076	24.4	Clarkson Univ	77	117	65.8
Ohio State Univ	718	2,577	27.9	Polytech U (NY)	119	206	57.8
Stanford Univ	679	2,370	28.6	S Dakota State U	19	33	57.6
Mass Inst of Tech	617	1,752	35.2	Andrews Univ	54	98	55.1
Cornell Univ	616	2,118	29.1	U Missouri-Rolla	79	146	54.1
U of Michigan	605	2,688	22.5	Stevens Inst	55	108	50.9
U of Texas-Austin	596	2,443	24.4	NJ Inst of Tech	16	32	50.0
U of Pittsburgh	570	1,923	29.6	Rensselaer PI	251	519	48.4

* Includes only doctorates who reported citizenship status.

Gender

Until 1987, the number and proportion of women doctorates increased every year since the SED began. This year, however, while the number of women did inch to a peak of 11,370, the proportion of women did not grow. Instead, women stalled at 35.2 percent--substantially the same percentage as the previous year's cohort (35.4 percent). While a more obvious gender gap existed among foreign recipients than among U.S. citizens, women's rise to parity among U.S. recipients was also stalled at the previous year's percentage--40.9 percent. The proportion of women permanent residents increased somewhat, to 29.3 percent, while that of temporary residents declined to 15.8 percent (see Appendix A, Table 5).

Figure 4 shows the number of men and women in six broad fields, 1960-1987. It displays the continuing gains women have been making in the female-underrepresented fields of physical sciences, life sciences, and engineering, as well as the slackening of gains in social sciences, humanities, and education. It is too soon to tell if the proportion of women in these fields has been checked after a tremendous period of growth or if women will restart their approach toward parity in the humanities and social sciences.

The disparity between the sexes was especially marked in certain disciplines. Appendix A, Table 2, shows the percentages of male and female recipients by select field in 1987. The data indicate that women were still seriously underrepresented in the physical sciences and engineering (90.3 percent male vs. 9.7 percent female in physics and astronomy, and 93.5 percent male vs. 6.5 percent female in engineering). While women earned 35.2 percent of the doctorates in the broad field of life sciences, within this field they outstripped men in the health sciences: women constituted 59.2 percent of health science Ph.D.s in 1987. This proportion is largely the result of a disproportionate number of women earning Ph.D.s in nursing, a traditionally female-dominated program; nonetheless, women also outnumbered men in degrees earned in audiology, public health, and epidemiology.

In the social sciences, the gap between numbers of men and women receiving doctorates has narrowed considerably since 1960. While in 1960 about 1,450 men and 215 women received social science Ph.D.s, a ratio of nearly 7:1, 43 percent of such doctorates in 1987 were awarded to women. This trend toward equality masks some sharp disparities among social science fields: women predominated in psychology (53.3 percent); but in economics and in political science, men led with ratios of 5:1 and 3:1, respectively, and in other social sciences, men outnumbered women 2:1.

The gender gap in the humanities has also been narrowing, and in 1987, 45 percent of Ph.D.s in the field were awarded to women. This compares to a ratio of approximately 5:1 in favor of men in 1960. In subfields of the humanities, women were more numerous in English and foreign languages and literature (56.1 percent and 59.0 percent, respectively), while men predominated in history (65.6 percent) and other humanities (59.3 percent).

Education is the only broad field where women today are more numerous than men: in 1987, 55.1 percent of education doctorates were earned by women. This continues a trend begun in the early 1970s, when the numbers of male education doctorates dropped from about 5,500 in 1972 to about 3,000 in 1987, and the number of women rose from 1,500 to 3,500. In 1987, however, both men and women decreased the number of degrees earned in this field.

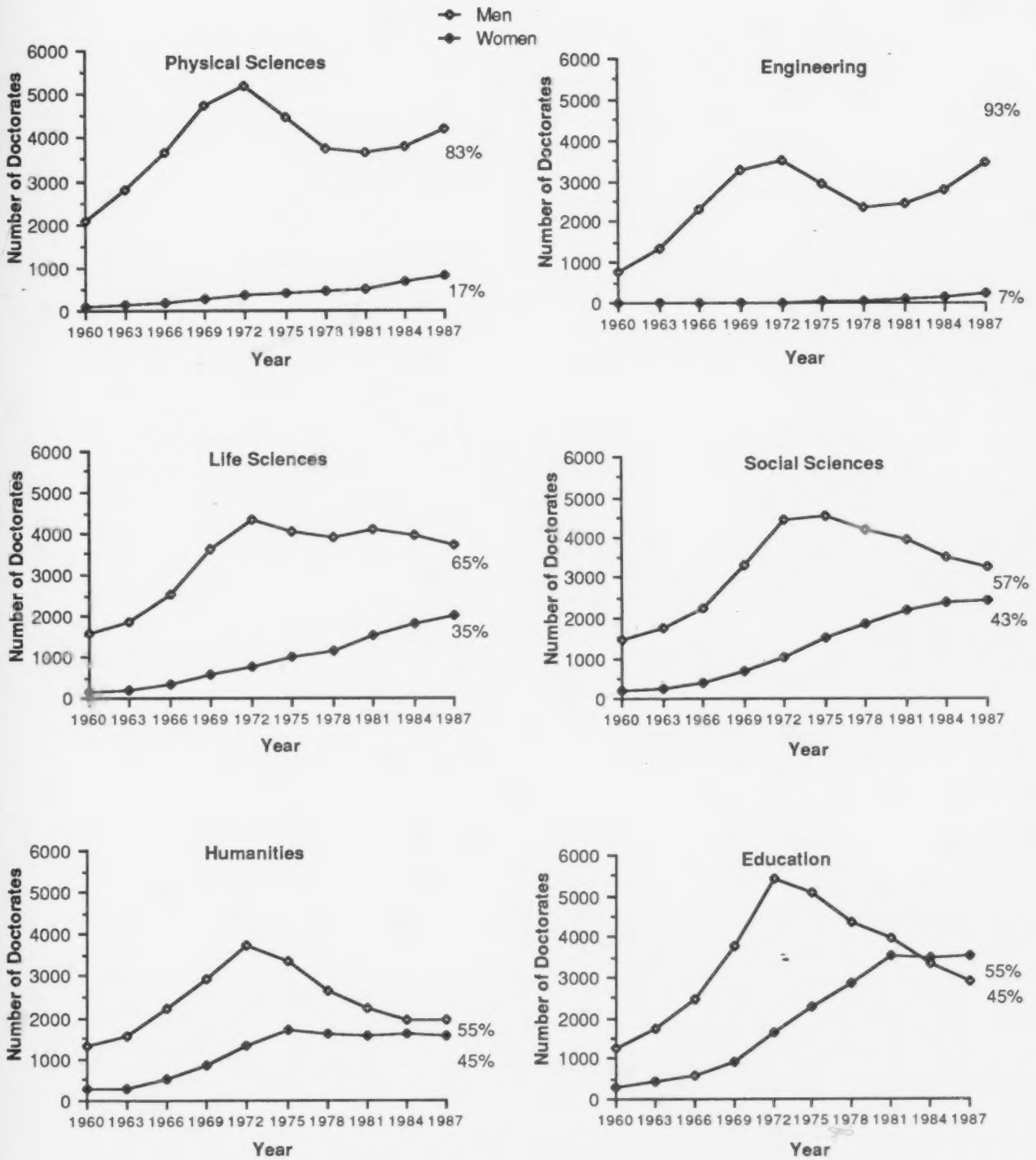

Figure 4. Number of men and women doctorate recipients, by broad field, 1960-1987.

Race/Ethnicity

Perhaps one of the most salient issues today in the demographics of Ph.D.s is the representation of minorities. A direct comparison of racial/ethnic Ph.D. groups with their percentages in the U.S. population cannot be made, unfortunately, because the Census Bureau collects ethnic data in a way that is not comparable with the SED's data. However, rough contrasts can be drawn. The 1980 census indicated that American Indians were 0.6 percent of the population, blacks were 11.7 percent, Hispanics were 6.4 percent, Asians were 1.5 percent, and whites were 83.1 percent; the percentages add to greater than 100 percent because Hispanics were sometimes double-counted as blacks or whites, and hence the data are not comparable. They would suggest, though, that among doctorate recipients, American Indians, blacks, and Hispanics are underrepresented relative to their proportions in the general population and that Asians and whites are overrepresented. Table G displays racial/ethnic data from the SED by citizenship group and gender; U.S. citizens and permanent residents (n = 23,897 with known race/ethnicity) constitute the population closest to that counted by the Census Bureau.[1]

The good news among the underrepresented groups is that the American Indian and Hispanic Ph.D. populations have been slowly growing over the last decade. In 1977, 66 U.S. or permanent-resident American Indians earned Ph.D.s (0.3 percent of the cohort); and in 1987, 115 American Indians earned the doctorate (0.5 percent). The 474 Hispanics graduated in 1977 were 1.8 percent of the cohort; the 709 Ph.D.s of 1987 were 3.0 percent. Conversely, however, black Ph.D.s declined in numbers and proportions of Ph.D.s: 1,194 U.S. and permanent-resident blacks received doctorates in 1977 (4.5 percent), but only 904 blacks earned degrees in 1987 (3.8 percent). As Table G shows, the increase in Hispanic and American Indian Ph.D.s was primarily a function of the increase in women doctorates. Moreover, the decline among black doctorates was largely a result of the steady decrease in the number of men earning the degree.

The top 10 institutions awarding doctorates to minorities, 1983-1987, are listed in Table H. As with Table F, the list shows absolute numbers as well as percent of doctorates awarded by the school. (The paucity of American Indian doctorates precludes statistically meaningful disaggregation.)

Most programs serving large numbers of Asians were found in the West or Midwest. The largest program was at the University of California-Berkeley, which awarded 516 out of a total of 3,027 doctorates to Asians between 1983 and 1987, or 17 percent. The University of Illinois-Urbana, Ohio State University, and the University of Wisconsin-Madison all awarded over 400 doctorates to Asians between 1983 and 1987. Note that the list for Asian recipients resembles Table F, which shows the leading institutions graduating foreign doctorates.

The largest number of doctorates awarded to blacks was from Howard University, which conferred 216 out of its 271 Ph.D.s (79.7 percent) to members of this group. Several other schools awarded over 100 Ph.D.s to blacks; however, except for Atlanta University--where 91.6 percent of recipients were black--these comprised a much smaller proportion of the number of degrees awarded. These schools include several of the leading institutions shown in Table B (page 5) as well as Michigan State and the University of Maryland.

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[1] Bureau of the Census, *1980 Census* (PC80-1-B1), Washington, D.C.: U.S. Government Printing Office, 1983, Chart 43: "Persons by Age, Race, Spanish Origin and Sex: 1980," pp. 27-36.

TABLE G: Doctorate Recipients, by Gender, Race/Ethnicity, and Citizenship, 1977-1987

Race/Ethnicity	Year of Doctorate										
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
MEN											
American Indian											
U.S.	43	50	56	46	56	44	50	54	39	58	62
Permanent Visas*	-	-	-	-	-	-	1	-	-	-	-
Temporary Visas*	4	1	3	-	-	-	-	-	-	1	1
Asian											
U.S.	251	287	311	313	315	281	312	338	329	348	367
Permanent Visas	488	531	564	513	499	444	431	389	437	415	453
Temporary Visas	955	1,114	1,253	1,282	1,341	1,567	1,731	1,982	2,137	2,256	2,498
Black											
U.S.	684	584	551	499	499	483	413	427	379	322	317
Permanent Visas	70	65	52	63	80	81	73	81	117	106	118
Temporary Visas	236	252	288	305	339	340	339	382	354	275	261
Hispanic											
U.S.	310	317	308	256	275	344	288	314	300	302	332
Permanent Visas	36	52	52	48	47	52	45	47	50	71	50
Temporary Visas	210	251	310	280	321	247	288	252	294	288	288
White											
U.S.	17,011	15,573	15,261	14,848	14,459	13,987	13,606	13,159	12,790	12,283	12,116
Permanent Visas	446	379	319	326	331	309	381	350	367	410	436
Temporary Visas	1,252	1,197	1,068	1,130	1,225	1,242	1,287	1,224	1,272	1,214	1,249
WOMEN											
American Indian											
U.S.	22	10	25	29	29	33	31	20	56	41	53
Permanent Visas*	1	-	-	-	-	-	-	-	-	-	-
Temporary Visas*	-	-	-	-	-	-	-	-	-	-	-
Asian											
U.S.	88	103	117	145	150	171	180	174	187	181	173
Permanent Visas	83	111	110	131	109	108	120	118	116	111	169
Temporary Visas	163	197	210	190	223	262	275	313	389	387	428
Black											
U.S.	432	449	505	533	514	564	509	526	533	500	448
Permanent Visas	8	8	6	11	17	15	10	21	14	20	21
Temporary Visas	13	18	32	26	33	33	24	37	41	38	43
Hispanic											
U.S.	113	156	154	156	189	191	250	222	261	269	286
Permanent Visas	15	13	25	25	15	27	24	24	23	36	41
Temporary Visas	22	38	38	48	68	47	54	48	67	83	50
White											
U.S.	6,054	6,238	6,659	7,145	7,521	7,689	8,077	8,171	7,938	8,303	8,242
Permanent Visas	143	152	157	142	159	154	163	163	167	184	213
Temporary Visas	196	175	195	201	207	216	252	267	295	290	303

*In most cases, non-U.S. American Indians are citizens of Canada or of Latin American countries.

TABLE H: Leading Institutions of Minority Doctorate Recipients, 1983-1987

Ranked on Number of Minority Doctorates				Ranked on Percentage of Minority Doctorates			
	Total	Minority PhDs			Total	Minority PhDs	
Institution	PhDs*	N	%	Institution	PhDs*	N	%
Asians							
U of Cal-Berkeley	3,027	516	17.0	Lamar Univ	17	15	88.2
U of Ill-Urbana	2,645	506	19.1	NJ Inst of Tech	32	16	50.0
Ohio St Univ	2,533	459	18.1	Polytechnic U (NY)	196	93	47.4
U of Wis-Madison	2,892	428	14.8	Clarkson Univ	103	44	42.7
U of Michigan	2,622	366	14.0	U of Hawaii	549	233	42.4
U of Cal-L.A.	2,158	363	16.8	Stevens Inst Tech	101	41	40.6
U of Texas-Austin	2,401	360	15.0	U of Lowell	52	21	40.4
Purdue Univ	1,734	341	19.7	Northeastern La U	15	6	40.0
Stanford Univ	2,297	340	14.8	U of Missouri-Rolla	138	53	38.4
Cornell Univ	1,989	318	16.0	U of Texas-Arlngton	147	50	34.0
Blacks							
Howard Univ	271	216	79.7	Atlanta Univ	143	131	91.6
U of Michigan	2,622	173	6.6	Meharry Med College	15	13	86.7
Ohio St Univ	2,533	168	6.6	Howard Univ	271	216	79.7
U of Pittsburgh	1,869	162	8.7	Texas Southern U	67	48	71.6
Michigan St Univ	1,914	137	7.2	Pepperdine Univ	118	28	23.7
Columbia Teachers	1,073	136	12.7	Union Theol Sem	34	6	17.6
Atlanta Univ	143	131	91.6	Indiana U of Pa	56	9	16.1
U of Maryland	1,787	122	6.8	South Dakota St U	31	5	16.1
Geo Washington U	800	119	14.9	Andrews Univ	94	15	16.0
Nova Univ	871	119	13.7	Geo Washington U	800	119	14.9
Hispanics							
U of Texas-Austin	2,401	181	7.5	U of Puerto Rico	49	48	98.0
U of Cal-Berkeley	3,027	116	3.8	Texas A&I Univ	37	29	78.4
U of Florida	1,486	102	6.9	New Mexico St Univ	262	48	18.3
Stanford Univ	2,297	102	4.4	U of the Pacific	91	14	15.4
New York Univ	1,691	99	5.9	Middlebury College	21	3	14.3
U of Cal-L.A.	2,158	98	4.5	U of Miami	454	53	11.7
U of Wis-Madison	2,892	93	3.2	U of Cal-Riverside	489	55	11.2
Texas A&M Univ	1,538	85	5.5	U of La Verne	44	5	11.4
U of Mass-Amherst	1,392	73	5.2	U of New Mexico	554	59	10.6
U of Michigan	2,622	72	2.7	Andrews Univ	94	10	10.6

*Includes only doctorates who reported race/ethnicity.

The greatest number of doctorates awarded to Hispanics was by the University of Texas-Austin, which gave 181 of its 2,401 Ph.D.s (7.5 percent) awarded between 1983 and 1987 to this group. Other schools awarding over 100 Ph.D.s to Hispanics over this period were the University of California-Berkeley, the University of Florida, and Stanford University.

Racial data are frequently requested for U.S. citizens alone, and for this reason Figure 5 displays the changes in proportionate minority shares of the U.S. doctorate population over the period 1977-1987. The results are much the same as when combined with permanent residents, except for the Asian group: Asian Americans constituted a smaller percentage of the U.S. cohort than of the overall doctorate cohort.

As Table I shows, the largest share of U.S. minorities earned their doctorate degrees in the field of education in 1987: 30.1 percent of Hispanics, 35.7 percent of American Indians, and 49.5 percent of blacks. The second most frequently chosen field for these three groups was social sciences: where 23.6 percent of Hispanics, 19.1 percent of American Indians, and 17.8 percent of blacks earned their doctorates. Among Asian Americans, the most frequent field choice was life sciences, where 145 out of 540 received their degrees (26.9 percent), followed by engineering (25.0 percent).

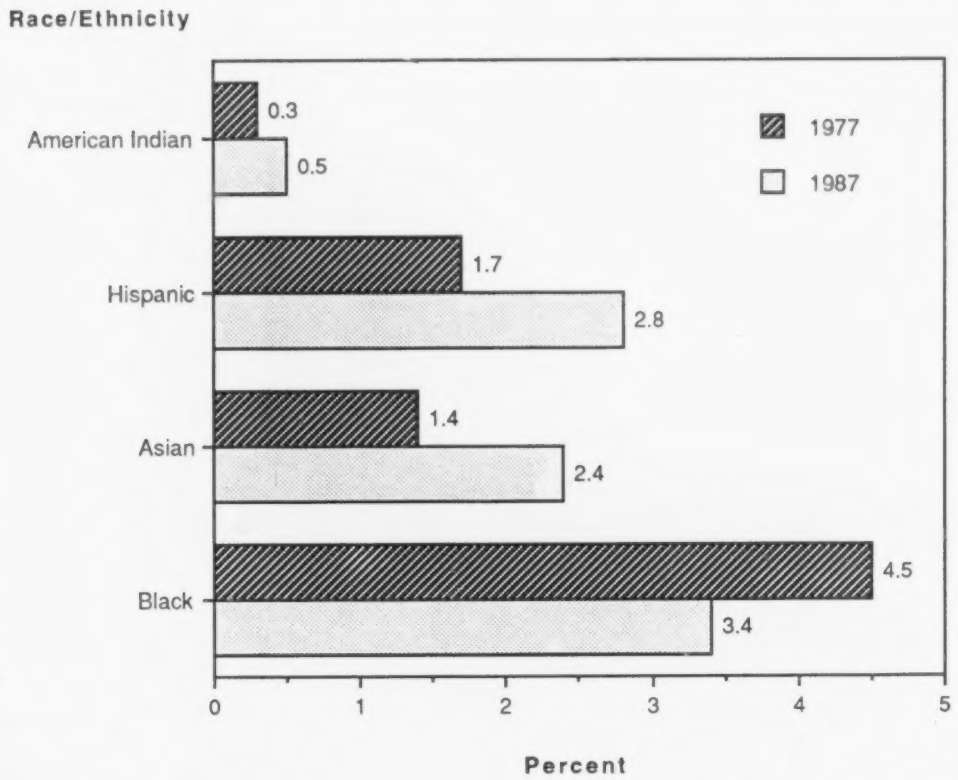

Figure 5. Percentage of doctorates earned by U.S. minorities, 1977 and 1987.

TABLE I: Race/Ethnicity and Broad Field of Degree of Doctorate Recipients, 1987 (U.S. Citizens)

Race/Ethnicity	Field of Doctorate							
	Total Fields	Phys. Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
Total U.S.	22,396	2,995	1,505	4,132	4,270	2,675	5,388	1,431
American Indians	115	10	7	16	22	11	41	8
Asian Americans	540	104	135	145	75	25	41	15
Black Americans	765	29	12	78	136	73	379	58
Hispanic Americans	618	64	24	77	146	96	186	25
White Americans	20,358	2,788	1,327	3,816	3,891	2,470	4,741	1,325

Sources of Support

The survey question regarding sources of financial support was changed in two respects in 1987, thereby providing results that were new and, in some cases, different from earlier years' data. The most significant change was that several new categories were added, allowing respondents to identify more accurately the type of support that they received. The new categories included NSF research assistantship, NIH research assistantship, other federal research assistantship, and foreign (non-U.S.) government support (see item 18 of the SED, p.75).

The addition of federal research assistantships ("RAs") had the effect of reducing reports of university RAs. The following chart illustrates the effect of the change between the 1986 and 1987 survey forms. In 1986, 59.1 percent of the doctoral class received federal support or university RAs. In 1987, 62.9 percent of the doctorates reported receiving such support, not a large difference from the year before. Between the two years, however, the distribution of sources changed, as shown:

	1986	1987
University RA	42.0	37.6
Federal, Non-RA	17.1	14.4
Federal RA	-	10.9
	59.1%	62.9%

Because of the apparent shifts in distribution, time-series data through 1986 are no longer comparable with the data collected in 1987, so this report discusses 1987 data only. (A solution for time-series analysis would be to look at research assistantships as a single type of support mechanism rather than as split between university-related and federal support.)

The second change in the question involved asking respondents to estimate the percentage of support received from each source, rather than just to designate their primary and secondary sources of support as in the past. With the new construction, the mean percentage of support from each source can be analyzed. While the change also interrupts

time-series reporting, the two changes offer the advantage of obtaining more precise information about recipients' financial support in graduate school.[2]

Table J displays the mean sources of support, by field, reported by doctorate recipients in 1987. The largest source was "own earnings," which accounted for 24.1 percent of total support in all fields. However, comparisons across fields show that students in some subject areas bore much more of a burden for their own support than students in others. While Ph.D.s in the physical sciences furnished only 7.0 percent of their support from their own earnings, doctorate recipients in education provided 51.4 percent. "Own earnings" constituted the most frequent source of support reported in two other fields: 32.3 percent in professional fields and 25.9 percent in the social sciences.

The next largest source of support overall--university teaching assistantships--accounted for a mean of 16.5 percent of support across all fields. The proportion varied across fields, however, ranging from a low of 6.7 percent for education doctorates to a high of 29.2 percent for physical scientists, the most frequently reported source in that field.

University research assistantships also accounted for substantial percentages of support--14.1 percent in the aggregate. In some fields this form of aid surpassed teaching assistantships--for instance, engineers received 30.7 percent and life scientists received 20.8 percent of support from university research assistantships, which were the most frequent sources in both of those fields. However, they accounted for a very small proportion of support in the humanities, 2.7 percent, and in education, 4.0 percent. It is likely that this discrepancy relates to the profusion of university-sponsored research projects in the natural sciences that could logically use student aid; in the non-science fields, research is often carried out by individual professors, and few students are needed to assist. In humanities, the gap was partially filled by a relatively larger percentage of support from university fellowships--9.9 percent, about twice that reported by recipients in other fields.

A relatively small percentage of student support came from federal research assistantships. The aggregate mean support from the federal RA categories, which were designated for the first time on the 1987 questionnaire, was less than 6.0 percent, the largest being National Science Foundation (NSF) RAs at 2.5 percent. NSF RAs were most concentrated in the physical sciences, where recipients reported this form of aid as a mean 8.5 percent of their total support. RAs from the National Institutes of Health (NIH) were more often reported by life scientists (a mean 5.0 percent); an additional 9.0 percent of their support was provided by NIH traineeships.

Variation occurred not only in distribution of support among degree fields but also among demographic groups. Differences between the sexes, among the citizenship groups,

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[2] Finally, though, note that because many of the survey respondents were provided superseded questionnaires, results of the 1987 survey do not constitute a universe and thus may not be strictly reliable. The distribution method of survey forms makes it impossible to ensure that respondents use the current fiscal year questionnaire (the fiscal year ends June 30 and includes the 12-month preceding period). For example, say a department distributes a form to a student in March who expects to graduate in May; however, graduation is delayed until August. In such a situation, the respondent uses a form for the wrong fiscal year. In FY1987, 22 percent of respondents completed superseded survey instruments, thus leading to an incomplete universe of response to the new items on the questionnaire.

and among the racial/ethnic groups will be discussed in the special section on time-to-degree (pages 29-42). The measure used will be that discussed in earlier reports--primary source of support, which can still be derived from the data collected in 1987.

TABLE J: Mean Percentage of Support for Doctorate Recipients, by Source of Support and Broad Field, 1987

Source	Field of Doctorate							
	Total Fields	Phys Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
A. NSF Res Ass't	2.5	8.5	6.2	1.6	0.5	0.1	0.1	0.2
B. NIH Res Ass't	1.5	2.5	0.6	5.0	0.5	0.0	0.1	0.1
C. Other Fed RA	1.8	4.5	4.8	1.6	0.8	0.1	0.3	0.2
D. NSF Fellowship	0.2	0.2	0.1	0.3	0.2	0.1	0.1	0.1
E. NIH Traineeship	2.0	0.3	0.2	9.0	1.5	0.1	0.1	0.2
F. Other HHS	0.2	0.0	0.1	0.7	0.5	0.0	0.0	0.3
G. Title IX-G*POP	0.2	0.2	0.4	0.3	0.2	0.2	0.3	0.2
H. Other Dept Educ	0.3	0.0	0.0	0.1	0.3	0.9	0.6	0.1
I. GI Bill	0.7	0.3	0.4	0.2	0.7	0.7	1.3	1.2
J. Other Fed Suppt	1.2	1.4	2.3	1.4	1.0	0.8	0.9	0.9
K. Foreign Gov't	2.7	2.6	6.5	3.6	1.7	1.0	1.3	3.1
L. Natl Fellowship	1.2	1.2	1.9	1.1	1.3	1.6	0.6	0.8
M. Univ Teach Ass't	16.5	29.2	14.2	13.4	15.5	27.0	6.7	16.1
N. Univ Res Ass't	14.1	23.4	30.7	20.8	8.7	2.7	4.0	8.1
O. Univ Fellowship	5.2	5.3	4.5	5.8	5.4	9.9	2.2	5.5
P. Coll Work-Study	0.4	0.2	0.2	0.5	0.7	0.7	0.4	0.2
Q. Other University	1.7	0.9	1.1	1.6	2.0	1.7	2.5	2.2
R. Business/Indus	2.2	1.9	4.1	1.4	1.0	1.0	3.5	3.1
S. Own Earnings	24.1	7.0	9.5	12.4	25.9	25.3	51.4	32.3
T. Spouse Earnings	8.8	4.4	3.9	9.0	10.7	12.0	11.2	10.2
U. Family Contrib	5.1	3.1	5.5	4.5	7.5	6.6	3.9	6.3
V. Guar Stu Loan	5.4	2.2	1.8	4.5	10.5	5.1	6.3	6.1
W. NDSL Loan	0.6	0.2	0.1	0.3	1.4	1.1	0.7	0.7
X. Other Loans	0.5	0.2	0.2	0.3	0.8	0.5	0.7	0.4
Y. Other Sources	0.8	0.5	0.5	0.9	0.8	0.8	0.8	1.5

Indebtedness

According to the data gathered by a new item on the FY1987 SED, concern that the majority of Ph.D.s are hopelessly encumbered with debt by the time they graduate is unfounded.[3] Item 19 (see p.75) asked,

> When you receive your doctorate degree, will you have any debt directly related to your undergraduate and/or graduate education (tuition and fees, living expenses, books and supplies, transportation to and from school)?

If respondents replied affirmatively, they were asked to indicate their level of cumulative debt. Five debt levels ranged from "$5,000 or less" to "$30,001 or more." These data are analyzed by deriving the median.

Of the 22,607 respondents to the debt question, over half--54.2 percent--reported finishing their doctoral programs with no debt. Of the 10,361 who replied affirmatively (45.8 percent), the biggest group--38.5 percent--owed less than $5,000; 27.2 percent owed between $5,001 and $10,000; 22.5 percent owed between $10,001 and $20,000; 8.6 percent owed $20,001 to $30,000; and 3.2 percent owed $30,001 or more. The median level owed for those with accumulated educational debt was $7,112.

Figure 6 displays the percentages of indebted recipients and the median levels of their debts by field. Engineering recipients had the lowest frequency of cumulative debt, with debt reported by 32.2 percent of the cohort. They were followed by doctorates in education and in physical sciences, 38.5 percent and 40.7 percent, respectively. These data correspond to the frequency of reported university and federal aid in the fields of physical sciences and engineering, indicating that availability of funds from other sources may be a factor in decisions not to borrow. Of those students who did end their graduate work with debt, these two fields also reported the highest proportion of students owing $5,000 or less (45.4 percent for engineering and 48.0 percent for the physical sciences). The median levels of debt were $5,841 and $5,369, respectively.

The median level of debt of education doctorates--$6,665--was lower than the average debt of $7,112, and so was the share of these recipients reporting debt at graduation--38.5 percent. But in the case of education doctorates, institutional support was not often reported; rather, a large percentage of education doctorates reported being supported by their own earnings. It will be seen in the time-to-degree section that education doctorates were in the pipeline longer than Ph.D.s in other fields, and a possible explanation for their lesser debt may involve "pay as you go" experiences.

The field reporting the highest percentage of recipients with debt was the social sciences, where 61.4 percent of graduates had accumulated debt at the end of their doctoral programs. This group also had the highest median level of debt--$9,407. In each of the other three broad fields, about half the recipients reported debt, but the levels of debt varied: $5,968 in the humanities, $7,092 in the life sciences, and $8,246 in professional fields.

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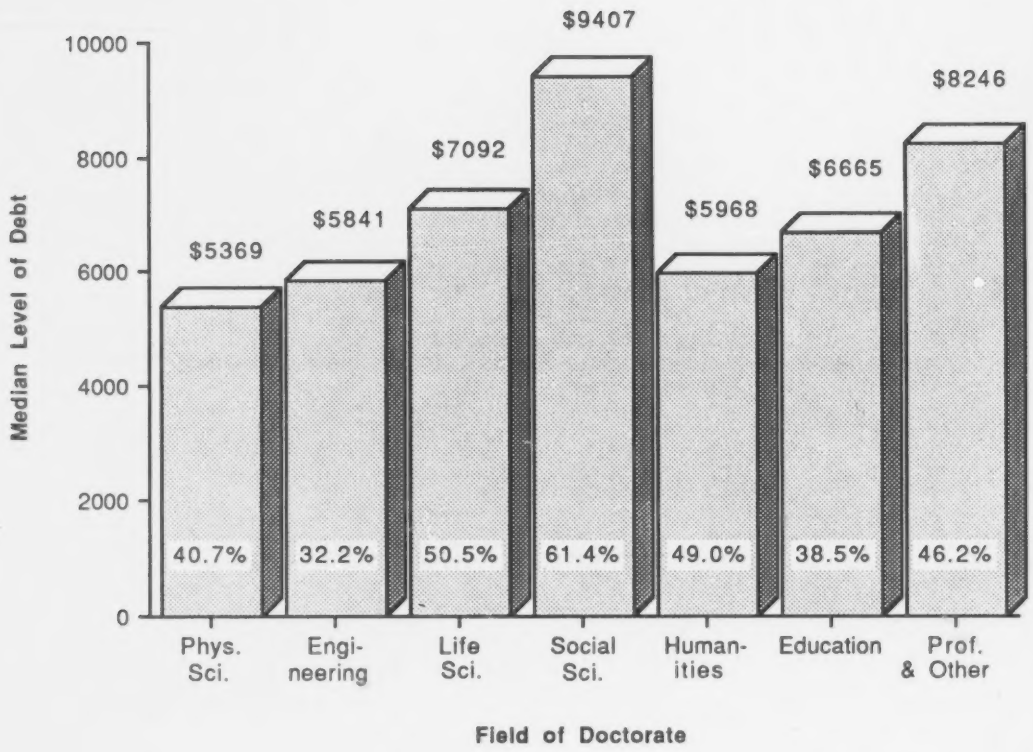
[3] Again, findings are drawn from a new item added to the survey instrument in fiscal year 1987, and the caveat at footnote 2 regarding the distribution of questionnaires applies. In addition, 10.3 percent of survey respondents who received the correct form did not respond to the question on debt.



NOTE: Doctorate recipients who reported no debt are not included in median levels of debt.

Figure 6. Percentage of doctorate recipients with debt and median level of debt, by broad field, 1987.

In Tables K and L, percentage and level of debt are displayed by demographic group. When considered by gender, percentages with debt were similar for men and women: 45.2 percent of men and 47.0 of women reported debt. For men, the median level of debt was $7,014; for women it was $7,282. However, when marital status was held constant, the situation changed, as will be seen in Table L.

Table K shows that U.S. citizens reported the greatest frequency of debt (53.1 percent), which may be field-related. Debt among U.S. citizens was not only 2.5 times as frequent as for temporary residents, it was also much higher--$7,315 for U.S. citizens versus $4,705 for non-U.S. citizens with temporary visas.

Considered by race, Asian Americans reported by far the smallest percentage of indebtedness, 50.7 percent, as compared to a high of 62.6 percent for Hispanic Americans. On the other hand, U.S. blacks had the smallest median debt--$6,836, contrasted with a high of $7,501 for U.S. Asians.

TABLE K: Percentage of Doctorate Recipients with Debt and Median Level of Debt, by Demographic Group, 1987

	Men	Women	U.S. Cit.	Perm. Res.	Temp. Res.	U.S. Asian	U.S. Black	U.S. Hisp.	U.S. White
Percent with Debt	45.2	47.0	53.1	34.9	19.1	50.7	58.7	62.6	52.6
Median Dollars*	7014	7282	7315	7474	4705	7501	6836	7406	7321

*Doctorate recipients who reported no debt are not included.

As Table L shows, being married was associated generally with less debt, presumably due to support by the spouse. Data show that 41.9 percent of those who were married reported debt, compared to 52.3 percent of single Ph.D.s. No clear pattern emerged for recipients with dependents.

Of the four marital status groups (single women, single men, married women, married men), single females had the greatest frequency of reporting debt and the highest median (56 percent; $8,167). Married females, on the other hand, had the least and the lowest debt (40 percent; $6,353). Of those recipients who were single with dependents, there were proportionately more women than men (61.7 percent vs. 38.3 percent), more of them reported debt, and they owed larger amounts. Yet of those married with dependents, there were fewer women than men, fewer reported debt, and they owed smaller amounts (except where there were three or more dependents).

TABLE L: Percentage of Doctorate Recipients with Debt and Median Level of Debt, by Marital Status and Presence of Dependents, 1987

	Single				Married			
		Number of Dependents				Number of Dependents		
	Total	0	1	2+	Total	0	1	2+
Percent with Debt								
All Ph.D.s	52.3	53.2	50.7	56.3	41.9	44.8	45.0	39.2
Men	49.7	50.9	47.0	51.7	42.8	50.0	45.6	39.7
Women	56.0	56.7	52.9	59.3	40.0	41.1	43.6	36.8
Median Dollars*								
All Ph.D.s	7598	7525	7977	7739	6748	6496	6553	7141
Men	7159	7091	7188	7501	6928	6179	6689	7389
Women	8167	8129	8462	7935	6353	6788	6261	5979

*Doctorate recipients who reported no debt are not included.

As seen in Table M, the presence and level of debt seemed to be associated with predoctoral employment status. The group least frequently reporting debt at the end of their doctoral programs was the full-time employed, 40.5 percent of whom were indebted, compared with 45.8 percent overall. The median level of debt of the full-time employed--$6,618--was also lower than the overall median. The frequency of debt among the unemployed--45.1 percent--was not very different from the average, but the level of debt was--$8,563, the highest of any group. Two groups with similar and higher-than-average frequencies of reported debt were those with part-time employment (53.7 percent) and those with fellowship support (54.8 percent); their median levels were $8,054 and $8,064, respectively.

TABLE M: Percentage of Doctorate Recipients with Debt and Median Level of Debt, by Predoctoral Status, 1987

	Full-time Employed	Part-time Employed	Fellow-ship	Assistant-ship	Not Employed
Percent with Debt	40.5	53.7	54.8	47.8	45.1
Median Dollars*	6618	8054	8064	6495	8563

*Doctorate recipients who reported no debt are not included.

Postgraduation Employment Commitments

The changing role of the Ph.D. and employment prospects in various sectors are of interest to researchers as well as prospective students. Table N compares postgraduation employment commitments for 1977 and 1987 by employment sector, gender, race/ethnicity, and field, for U.S. citizens and permanent visa-holders. These statistics are based solely on the set of doctorate recipients with definite employment plans at the time of graduation.

By far the greatest number of U.S. citizen and permanent-resident Ph.D.s with employment commitments at graduation reported that they would enter academe, 6,526 out of the 12,924 total in 1987. Yet, one of the most significant vocational trends over the last 10 years is the declining number of Ph.D.s employed at colleges and universities. For all fields, 50.5 percent of Ph.D.s graduated in 1987 entered academe, as compared to 58.6 percent in 1977. The percentage of new Ph.D.s joining government also declined, from 13.3 percent in 1977 to 10.8 percent in 1987. The slack was taken up by an increase in employment of Ph.D.s in industry, which provided jobs for 19.3 percent of graduates in 1987, up from 12.7 percent in 1977. The number of Ph.D.s employed in a category of "Other" (which includes elementary and secondary schools, nonprofit organizations, and self-employment) and "Unknown" also increased, from a combined 15.8 percent to 20.4 percent of the cohort.

Comparing the total in all fields by gender, it can be seen that the number of women with commitments to academe dropped more precipitously than the number of men, with a decline for women from 68.8 percent in 1977 to 54.9 percent in 1987, vs. 55.3 percent to 47.5 percent for men. Nonetheless, proportionately more women than men planned to enter academe. In offsetting the decline of academic appointments, the percentage of

female Ph.D.s in industry grew from 5.5 percent in 1977 to 13.3 percent in 1987, whereas the percentage of male Ph.D.s went from 15.1 percent to 23.4 percent over the period. Percentages of female Ph.D.s in government remained relatively stable, whereas the percentage employed in "Other" rose more steeply, from 17.0 percent to 23.5 percent, than the male increase, 14.8 percent in 1977 to 16.6 percent in 1987.

Employment commitments by racial/ethnic groups presented a mixed picture. The situation for Asians remained much the same in 1987 as it was in 1977, but other groups changed more visibly. For American Indians, the biggest shift was into industry, then into "Other," with concurrent decreases in commitments to academe and government. The proportion of blacks dropped steeply in academe (from 67.3 percent in 1977 to 51.6 percent in 1987) and rose in all other sectors, especially the "Other" category. For Hispanics, the decline in the percentage going into academe was even more dramatic--from 71.4 percent to 54.0 percent between 1977 and 1987. The shift for Hispanics was into industry or "Other." Finally, white recipients also had diminished commitments to academe and increased commitments to industry and "Other," but the changes for whites were not as dramatic as for the other groups.

TABLE N: Employment Sector Commitments of Doctorate Recipients, by Gender, Race/Ethnicity, and Broad Field, 1977 and 1987 (U.S. Citizens and Permanent Residents)

	Employment Sector							
	Academe*		Industry		Government		Other&Unkn	
	1977	1987	1977	1987	1977	1987	1977	1987
Total Ph.D.s	58.6	50.5	12.7	19.3	13.3	10.8	15.8	20.4
Men	55.3	47.5	15.1	23.4	14.8	12.5	15.2	17.2
Women	68.8	54.9	5.5	13.3	8.7	8.4	17.4	25.1
American Indians	51.2	46.9	9.8	18.8	19.5	12.5	19.5	23.4
Asians	39.8	40.6	46.6	43.0	9.0	11.3	4.9	7.3
Blacks	67.3	51.6	4.8	8.9	9.6	14.0	19.4	28.4
Hispanics	71.4	54.0	5.2	12.9	13.6	12.9	10.1	21.9
Whites	58.5	50.8	12.4	19.0	13.6	10.6	15.9	20.6
Physical Sciences	42.2	35.7	38.2	49.5	17.3	11.8	2.5	3.5
Engineering	26.2	30.1	49.6	53.1	21.4	15.3	3.1	1.6
Life Sciences	60.2	52.3	16.6	23.8	17.1	16.6	6.1	7.9
Social Sciences	61.3	44.9	7.3	19.0	17.6	14.5	14.1	22.8
Humanities	84.8	80.9	3.3	5.6	3.2	3.2	9.2	11.4
Education	53.8	44.3	3.1	6.4	12.0	9.8	31.8	41.2
Professional/Other	75.8	73.4	7.2	10.7	7.2	5.6	10.1	10.6

*Academe includes two- and four-year colleges and universities, medical schools, and foreign universities. Elementary and secondary schools are included in "Other and Unknown."

Looking at differences in employment across fields, it is clear that the general trends mask some fundamental differences. While most fields contributed to the general decline in the proportion of Ph.D.s employed in academe over the course of the decade, the drop was sharper than the aggregate in the social sciences, where academic appointments for new Ph.D.s fell 16 percentage points over the decade, from 61.3 percent in 1977 to 44.9 percent in 1987. Much of the drop was taken up by industry, which employed 7.3 percent of social science Ph.D.s in 1977 and 19.0 percent in 1987. Engineers, on the other hand, actually increased the percentage of Ph.D.s employed in academe, the only group to do so. The rate increased from 26.2 percent in 1977 to 30.1 percent in 1987, with the difference largely being made up by lower rates of government service for this field, down to 15.3 percent from 21.4 percent. Although the fields of engineering and the physical sciences have always contributed heavily to industry, the percentages rose even more steeply over the past 10 years, from 49.6 percent to 53.1 percent in engineering and from 38.2 percent to 49.5 percent in the physical sciences.

A small drop in the proportion of Ph.D.s entering government was spread relatively evenly across fields, although somewhat sharper in engineering, as mentioned, and the physical sciences, where the percentage fell from 17.3 percent to 11.8 percent. The increase in Ph.D.s entering "Other" occupations was especially marked in education (31.2 percent in 1977 vs. 39.6 percent in 1987) and in the social sciences (13.8 percent vs. 21.5 percent). A substantial number of these social scientists were psychologists, whose intention was to go into private practice.

Another way to assess how Ph.D.s are being utilized in the society is to look at work activity within employment sector. Table O displays postgraduation employment commitments by employment sector, work activity, and field, 1977 and 1987, for U.S. citizens and permanent residents. Five categories of activity were possible: research and development (R&D), teaching, administration, professional service, and "Other." Although some employment sectors use more Ph.D.s in one activity than others, broad trends can be identified both within and across sectors.

TABLE O: Work Activity Plans of Doctorate Recipients, by Employment Sector and Broad Field, 1977 and 1987 (U.S. Citizens and Permanent Residents)

	Primary Work Activity									
	R&D		Teaching		Administration		Prof. Serv.		Other	
	1977	1987	1977	1987	1977	1987	1977	1987	1977	1987
Academe	10.3	19.1	76.9	65.4	8.9	9.7	3.3	4.8	0.7	1.0
Industry	68.5	59.3	1.2	2.6	4.5	4.7	18.3	28.2	7.5	5.2
Government	44.2	42.6	3.9	4.7	24.1	23.9	23.7	21.9	4.1	6.8
Other	10.8	9.1	20.2	19.4	40.1	39.4	25.8	29.1	3.2	3.0
Phys. Sci.	57.7	67.7	32.8	22.5	2.7	2.4	4.0	5.1	2.8	2.3
Engineering	68.3	72.7	20.0	16.7	3.4	1.9	5.5	6.6	2.8	2.0
Life Sci.	41.4	51.9	40.5	25.6	4.9	7.4	10.3	10.8	2.9	4.3
Social Sci.	18.9	23.0	50.2	27.5	5.2	6.5	23.5	40.0	2.1	3.1
Humanities	4.4	7.4	83.0	78.2	5.6	5.3	3.5	5.2	3.5	3.9
Education	6.2	5.2	42.8	37.7	37.7	41.0	11.7	14.0	1.5	2.1
Prof./Other	8.0	19.5	70.1	55.1	11.3	10.6	7.8	12.1	2.8	2.7

Over the decade, the roles of the Ph.D. in academe and industry have noticeably shifted, although roles in government and "Other" sectors have not changed much. The biggest change has been the increase in Ph.D.s employed in R&D in colleges and universities at the same time that teaching as the principal occupation of academicians has declined. The shift from a teaching role to a research position has been most pronounced in the sciences, engineering, and professional fields. In contrast, R&D as a primary work activity for doctorates in the humanities remained a tiny portion of jobs for new entrants, although a small increase did occur. Teaching remained the most frequent activity of those humanists with definite employment plans, though it did decline somewhat, to 78.2 percent in 1987. Teaching was still the primary activity of a majority of degree-earners in professional fields, although that percentage had dropped off heavily. For doctorates in education, fluctuations in the distribution of work activities were not as great as for Ph.D.s in the other fields.

TIME-TO-DEGREE

This year's special section focuses on the time lapse between earning the undergraduate and the graduate degrees. The time spent in completing a doctoral degree in the United States has been rising steadily for nearly 20 years. The increase in time-to-degree should be an issue for all those interested in doctorate "production"--the educators, who are involved in the process of degree attainment; direct end-users, such as academe and industry, who rely on Ph.D. personnel; and the more indirect users, government and society at large, who benefit from the contributions of a highly educated and productive group. Degree completion times are contrasted across fields and across demographic groups, and additional data from the survey are examined as possible factors associated with the length of time it takes to earn a doctorate. Time lapse was clearly field-related: completion times were shorter in the natural sciences and engineering, about average in the social sciences, and longer in the non-sciences. Other survey data that are crossed with time lapse are sources of support, field-switching, and a market demand proxy. The demographics that are compared include gender, citizenship, and race.

From the survey's item on educational history (item 13, p. 74), two time measures can be extracted: registered time and total time. Registered time-to-degree (RTD) subtracts out the years a recipient was not in graduate school between baccalaureate and Ph.D., for a net measure of time lapse. Total time-to-degree (TTD) refers to the number of years elapsed between earning the baccalaureate and earning the doctorate, for a gross measure. By either dimension, time-to-degree has increased approximately 30 percent over the last 20 years, although disaggregated data show that the increases have not been steady and have varied noticeably.

Changes in time lapse mean different things for the different measures of time-to-degree. The growth of RTD means that students are spending more time enrolled in graduate school. At least three reasons plausibly explain such an increase: (1) students are extending their study time, either because of curricular changes or dissertation demands; (2) students are extending their non-study activities while on campus (i.e., they are participating in activities such as teaching); or (3) students are increasingly enrolled on a part-time rather than a full-time basis. When TTD grows more than RTD, it means that students are also increasing their time out of graduate school--either by delaying their entrance into a graduate program or by dropping out for some period(s) of time prior to the completion of the program.

Overall, RTD rose from a median 5.4 years in 1967 to 6.9 years in 1987, an all-time high.[4] Figure 7 represents the time line between the two years and shows a slight decline

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[4] The median is used as the measure of central tendency rather than the mean because the distribution is skewed.

early on, when RTD was at a low of 5.3 years in 1968. The difference between the low and the high years of RTD is an increase of 1.6 years. TTD also evidenced a small dip from a median 8.1 years in 1967 to 7.9 years in 1970 and 1971. Thereafter, TTD rose to a high of 10.4 years in 1987. The difference between low and high TTD represents an increase of 2.5 years. Because the increase in TTD has been greater than that in RTD, it means that many students are increasing their time not only in school but also out of school.

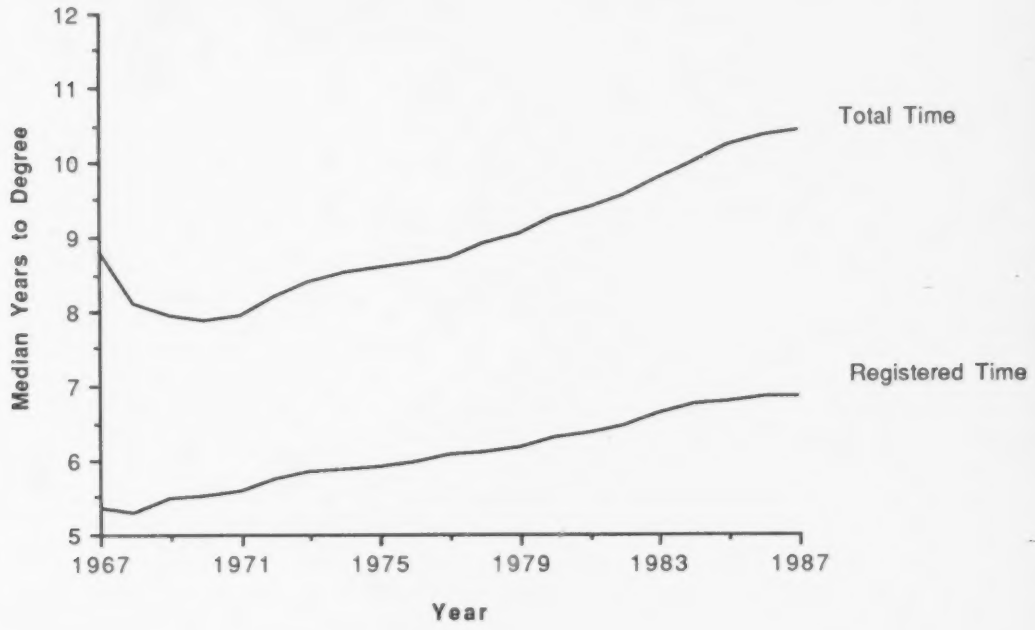

Figure 7. Median years to degree for doctorate recipients, all fields combined, 1967-1987.

Field Trends and Time-to-Degree

When disaggregated by the seven broad fields, all the doctorate fields experienced the basic pattern of change discussed above--that is, an initial dip followed by an upward climb in both measures of time lapse. However, the source and the size of the change varied enormously by field. Table P shows the differences between the broad fields in changing RTD and TTD medians between 1967 and 1987. In general, recipients in the social sciences and non-sciences experienced longer-than-average time lapses, while the natural scientists spent less than the average time earning their degrees.

The median RTD rose for recipients in all fields. In 1967, the shortest RTD was in physical sciences (5.1 years) and the longest in education (6.2 years). However, by 1987 the shortest RTD was in engineering (5.8 years) and the longest was in humanities (8.4 years). This shift occurred because the rate of increase was quite small in engineering (six months' increase over 20 years, for an annual growth rate of 0.5 percent) and quite large in humanities (2.9 years' increase, an annual growth rate of 2.1 percent). Note, though, that RTD was still shorter than average for physical scientists (6.0 years) and longer than average for education doctorates (7.9 years).

Obviously, a rising RTD will increase TTD as well, unless the unenrolled period decreases more. Between 1967 and 1987, the median TTD increased in every field. For doctorates in humanities and professional fields, RTD grew more than TTD, which means that their unenrolled time declined from 1967 to 1987. Thus, either these students shortened the period of time before their entrance into graduate school, or they reduced other periods of dropping out before completion of their degrees.

Conversely, the doctorate recipients in the other five fields increased both their RTD and their TTD in 1987, meaning that they spent more time enrolled and unenrolled in graduate school. Recipients with the longest unenrolled period were in the field of education: subtracting their median 7.9 years of RTD from their TTD of 16.2 years shows that education doctorates spent a median of 8.3 years outside graduate school before receiving their degrees. The shortest unenrolled periods were incurred by recipients of physical science degrees, whose median time out of graduate school was 1.4 years in 1987 (7.4 TTD years minus 6.0 RTD years).

TABLE P: Median Years to Degree for Doctorate Recipients, by Broad Field, 1967-1987

	Years to Degree										
	1967	1969	1971	1973	1975	1977	1979	1981	1983	1985	1987
Total											
Registered	5.4	5.5	5.6	5.8	5.9	6.1	6.2	6.4	6.6	6.8	6.9
Total	8.1	8.0	7.9	8.4	8.6	8.7	9.0	9.4	9.8	10.2	10.4
Physical Sciences											
Registered	5.1	5.2	5.4	5.7	5.5	5.7	5.7	5.7	6.0	6.0	6.0
Total	6.0	6.0	6.3	6.7	6.8	6.9	6.7	6.8	7.1	7.2	7.4
Engineering											
Registered	5.2	5.3	5.4	5.6	5.5	5.6	5.5	5.7	5.7	5.8	5.8
Total	7.2	7.0	7.2	7.7	7.5	7.5	7.6	7.9	8.0	8.1	8.1
Life Sciences											
Registered	5.4	5.4	5.4	5.5	5.6	5.7	5.7	5.9	6.1	6.3	6.5
Total	7.2	6.9	6.8	7.2	7.2	7.3	7.4	7.4	7.9	8.4	8.7
Social Sciences											
Registered	5.2	5.4	5.5	5.7	5.7	5.9	6.3	6.5	6.8	7.1	7.2
Total	7.7	7.4	7.3	7.6	7.7	8.0	8.4	8.9	9.3	9.9	10.3
Humanities											
Registered	5.5	6.0	6.1	6.4	6.7	7.1	7.5	7.7	8.0	8.3	8.4
Total	9.4	9.4	9.1	9.2	9.6	9.9	10.3	10.8	11.1	11.8	12.0
Education											
Registered	6.2	6.3	6.1	6.1	6.4	6.4	6.6	7.0	7.4	7.6	7.9
Total	14.0	13.4	12.7	12.5	12.5	12.5	12.8	13.5	14.1	15.1	16.2
Prof./Other											
Registered	5.3	5.3	5.5	5.9	6.1	6.1	6.2	6.5	6.9	7.2	7.2
Total	11.1	10.5	10.2	10.0	10.3	10.6	10.7	11.1	12.0	12.9	12.6

Sources of Support and Time-to-Degree

Tables Q and R compare the median times-to-degree of 1987 doctorates in the seven broad fields by their primary sources of support. To be sure, financial support is not the only variable that may affect time-to-degree, nor is it necessarily the most influential variable. The special section will also look at the other available and relevant variables of field-switching and postgraduation plans. While personal factors such as student ability or external factors such as labor-market demand may also be pertinent, they are simply beyond the scope of the SED database.

Tables Q and R suggest that the various support mechanisms may influence the length of time it takes to earn a doctorate. The influence extends not only to registered time-to-degree but also to total time. The shortest elapsed times overall were associated with support from research assistantships (RAs), 6.1 RTD years and 7.7 TTD years. However, when disaggregated by field, shorter time lapses were generally associated with university fellowships. Other nationally competitive fellowship sources such as those of the Ford and Rockefeller foundations were also associated with short RTDs, but not necessarily with TTD. Fellowships may be effective because they afford the opportunity to devote one's time to study or research. Recipients of such fellowships, however, may be the quickest to complete their degrees because of other personal characteristics that earned them the fellowships initially. Such characteristics might also be applicable to doctorates who are primarily supported by other competitively awarded sources, such as research assistantships (RAs) and teaching assistantships (TAs). In fact, students supported primarily with RAs or TAs also experienced shorter-than-average time lapses. It seems that having an RA may accelerate time-to-degree if the research project is related to the student's dissertation (but a disadvantage could occur if the research is unrelated to the dissertation,

TABLE Q: Median Registered Years to Degree for Doctorate Recipients, by Primary Source of Support and Broad Field, 1987

	Field of Doctorate							
Source	Total Fields	Phys. Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
Total Reported	6.9	6.0	5.8	6.5	7.2	8.4	7.9	7.2
Own Earnings	8.5	8.2	7.2	7.6	8.5	9.7	8.6	8.2
Family or Loans	7.1	6.0	6.0	6.6	7.0	8.3	7.4	7.2
Federal, Non-R.A.	6.5	5.8	5.4	6.3	7.0	8.3	7.7	6.7
R.A., Fed. & Univ.	6.1	5.9	5.7	6.4	6.6	8.4	6.5	6.0
Teaching Assistant	6.6	6.0	5.9	6.6	6.8	7.9	6.3	6.5
Univ. Fellowship	6.2	5.6	5.2	5.9	6.5	7.3	6.4	6.4
Other University	7.1	6.7	5.9	6.8	7.1	9.2	7.1	7.7
Natl. Fellowship	6.0	5.9	5.1	6.3	6.8	7.5	6.5	*
Other Sources	6.6	6.3	6.1	6.2	6.9	8.3	7.4	7.1

* The median is not reported because N was fewer than 10.

thus slowing the student's progress). It should be noted that many individuals hold a mix of support--part fellowship, part RA, part TA, and so on. It is possible that the source designated as "primary" is somewhat variable, and data from another year's cohort might show a different ranking of the sources associated with the shortest time-to-degree.

On the other hand, doctorate recipients whose primary support came from their own earnings show a more clear-cut association with length of time to the doctorate. These recipients not only had the longest RTDs in their degree programs overall (8.5 RTD years for all fields combined), but in every field as well. Moreover, RTD for the self-supported (the slowest group) was at greater variance from the average than was RTD for national fellows (the fastest group). Self-supported recipients took 1.6 years longer than the average 6.9 years to complete their degrees, while national fellows took 0.9 year less than the average. In the case of students principally supported by their own earnings, it is possible that RTD was longer than average because these students worked on their degrees on a part-time basis while holding down outside employment.

In terms of TTD as well, doctorates supported mostly with their own earnings were usually the slowest to complete their degrees, taking a median 15.4 TTD years for all fields combined--that is, 5 years longer than the average. Presumably they were slowest because these recipients spent additional time in the labor market instead of being enrolled in school.

TABLE R: Median Total Years to Degree for Doctorate Recipients, by Primary Source of Support and Broad Field, 1987

Source	Field of Doctorate							
	Total Fields	Phys. Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
Total Reported	10.4	7.4	8.1	8.7	10.3	12.0	16.2	12.6
Own Earnings	15.4	12.6	11.6	12.6	13.2	14.7	17.3	15.2
Family or Loans	11.2	7.9	8.4	9.0	10.1	12.1	15.3	12.2
Federal, Non-R.A.	9.3	9.3	9.6	7.7	10.4	12.6	16.2	15.8
R.A., Fed. & Univ.	7.7	6.9	7.4	8.1	8.6	10.8	13.1	9.6
Teaching Assistant	8.8	7.3	7.7	8.3	8.5	10.2	12.6	10.2
Univ. Fellowship	8.3	6.4	6.9	7.5	8.4	10.2	12.8	9.1
Other University	11.6	8.0	8.3	9.9	10.2	13.4	15.1	14.8
Natl. Fellowship	8.8	6.4	5.7	9.4	11.2	11.6	17.1	*
Other Sources	11.8	9.0	10.3	11.5	10.6	15.7	15.6	13.5

* The median is not reported because N was fewer than 10.

Field-Switching and Time-to-Degree

Another factor possibly associated with time lapse is a recipient's baccalaureate study field. It seems likely that a student whose baccalaureate is in the same field as his or her doctorate would have a foot up in the absorption of advanced material over someone who switches fields.[5] It follows, then, that field-switching would lengthen time-to-doctorate. In 1987, this phenomenon was more obvious for TTD than for RTD, although it was seen there, too. Moreover, it was more apparent in certain fields than in others.

Figure 8 shows the differences in times-to-degree between field-switchers and persons who continued in the same field. RTD was shorter in every field for the group of persons earning Ph.D.s in the same field as their bachelor's, implying a higher level of student preparedness. Still, some of the differences were minimal. For example, the median RTD for life scientists from the same field of baccalaureate was 6.4 years; for field-switchers, it was 6.6 years. Greater disparity appeared in TTD, where field-switchers took over a year longer to complete their doctorates in five of the seven fields. The largest difference was between the groups getting degrees in the social sciences: field-switchers' median TTD was 4 years longer than same-field doctorates (13.3 TTD years versus 9.1 TTD years). (Education doctorates showed virtually no difference between the groups.) Longer TTD for field-switchers may have occurred for many reasons, such as a student's investing more time in pre-admission preparation or in simply making the decision to switch fields.

Postgraduation Plans and Time-to-Degree

It was thought that time-to-degree might be associated with a recipient's postgraduation status--that is, whether an individual had made a definite commitment to work or to postdoctoral study versus whether he/she was still seeking an appointment. Definite plans were assumed to proxy for labor-market demand in that persons with definite plans would supposedly be in greater demand, so they would show shorter times-to-degree. In fact, this assumption was not supported.

As Figure 9 shows, RTD and TTD were affected differently. In RTD there was little difference between "seekers" and those with definite plans, with "definites" having only slightly shorter time lapses. Education was an exceptional field, wherein RTD for "definites" was longer by 0.7 year. In TTD, the disparity was a little wider, but here "seekers" had the shorter time lapses in four of seven fields. What may have been happening in TTD is that a segment of the group with definite plans were continuing in predoctorate employment, and such employment was a factor in elongating the time-to-degree. Thus, either the status variables of "definite" and "seeking" are not good proxies for labor-market demand, or such demand is not relevant to time-to-degree.

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[5] Field-switching occurs when an individual's doctorate field is outside his or her baccalaureate cluster field, not necessarily his exact field. Most of the clusters are evident from the bold-faced headings and subheadings that appear on the Specialties List, p. 76. Some exceptions occur for individual or closely related fields--for example, biochemistry constitutes a single cluster, and sociology and anthropology form a single cluster.

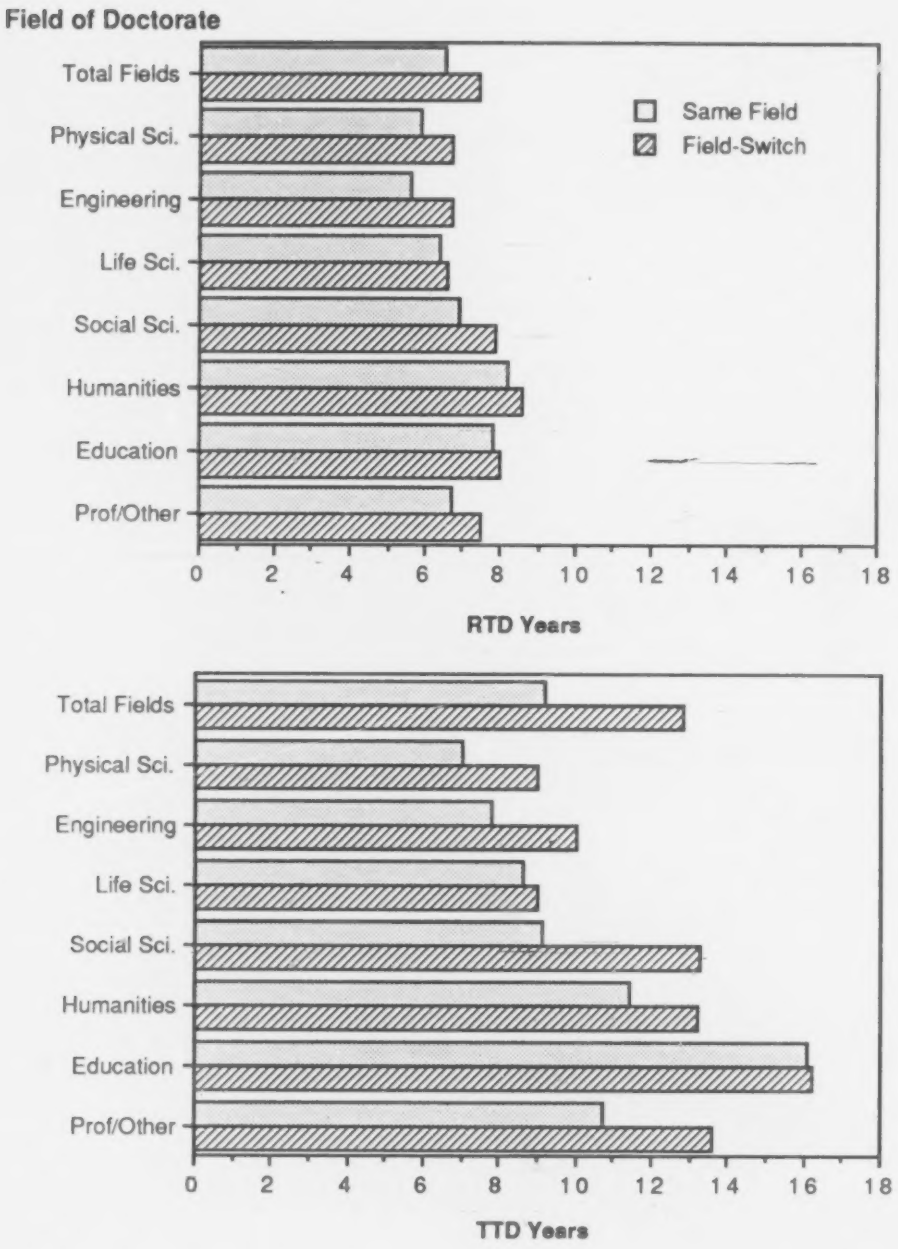

Figure 8. Median years to degree for doctorate recipients, by field of doctorate and field of baccalaureate, 1987.

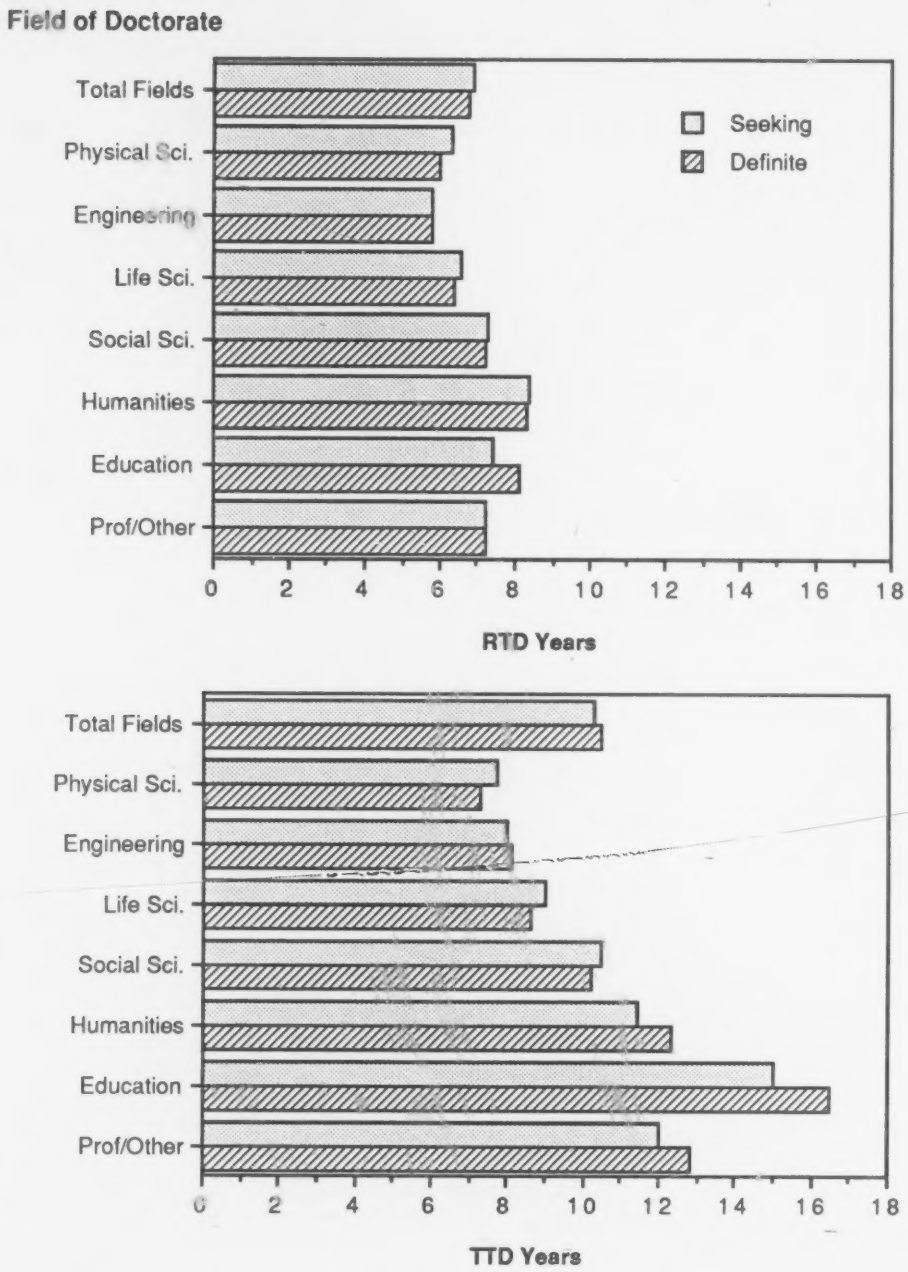

Figure 9. Median years to degree for doctorate recipients, by field of doctorate and postgraduation plan status, 1987.

Demographics and Time-to-Degree

As Table S indicates, the differences in RTD and especially TTD for all fields combined were quite noticeable between the sexes, among the citizenship groups, and among the racial groups. When the fields were disaggregated, however, the differences were much smaller. (The group identified as American Indian is not shown because its numerical distribution among fields was too small for "averages" to be meaningful.)

TABLE S: Median Years to Degree for Doctorate Recipients, by Demographic Group and Broad Field, 1987

	Field of Doctorate							
Demographics	Total Fields	Phys. Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
RTD Years								
Total Ph.D.s	6.9	6.0	5.8	6.5	7.2	8.4	7.9	7.2
Men	6.6	6.1	5.8	6.4	7.2	8.1	8.0	7.3
Women	7.3	5.9	5.7	6.6	7.3	8.6	7.9	7.1
U.S. Citizens	7.1	6.0	5.8	6.5	7.3	8.5	8.1	7.5
Permanent Res.	6.8	6.6	6.0	6.8	7.6	8.2	7.0	7.5
Temporary Res.	6.1	6.1	5.7	6.1	6.5	7.1	6.1	6.4
U.S. Asians	6.9	6.0	6.2	7.1	7.9	8.3	8.4	8.0
Blacks	8.2	7.0	6.5	7.1	8.2	9.4	8.5	8.6
Hispanics	7.3	6.1	6.1	6.6	7.8	8.5	7.8	6.7
Whites	7.1	6.0	5.7	6.5	7.3	8.5	8.1	7.5
TTD Years								
Total Ph.D.s	10.4	7.4	8.1	8.7	10.3	12.0	16.2	12.6
Men	9.7	7.4	8.1	8.5	10.3	11.7	15.7	12.1
Women	12.2	7.3	7.2	9.2	10.4	12.5	16.6	13.5
U.S. Citizens	10.9	7.0	7.5	8.4	10.4	12.2	16.5	13.6
Permanent Res.	9.8	8.2	8.6	9.3	11.0	11.2	12.8	11.6
Temporary Res.	9.3	8.5	8.5	9.9	9.8	10.9	12.3	10.4
U.S. Asians	9.4	7.0	8.8	9.0	11.8	12.0	18.3	14.0
Blacks	15.1	9.3	6.5	10.7	11.3	14.8	17.5	15.8
Hispanics	11.2	6.9	7.8	8.8	10.0	12.4	15.2	13.0
Whites	10.8	7.0	7.4	8.4	10.3	12.1	16.5	13.4

Gender

Overall, men completed their degrees more quickly than women in 1987. Men's median registered time to completion was 6.6 years; women's was 7.3 years. But as Table S shows, the discrepancy in RTDs virtually disappeared when field was held constant. The sole exception was in humanities, where women continued to be enrolled a half-year longer than men.

In terms of total time-to-degree, men overall completed much more quickly than women--a median 9.7 years versus 12.2 years. Again, when field was held constant, the gap between men and women narrowed considerably in several fields and disappeared altogether in the physical and social sciences. Nonetheless, women continued to take 0.7-1.4 years longer in life sciences, humanities, education, and professional fields. In engineering the gap reversed direction, and men lagged the small group of women engineers by nearly a year.

Primary support patterns of men and women were examined by field to shed light on these findings. As seen in Table T, there were few significant differences in funding

TABLE T: Percentage Distribution of Primary Sources of Support for Doctorate Recipients, by Gender and Broad Field, 1987

	Field of Doctorate							
Source*/Gender	Total Fields	Phys. Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
Personal								
Men	35.5	13.1	15.1	23.1	50.6	48.8	73.7	51.7
Women	54.6	11.3	16.3	30.5	60.4	48.3	78.7	57.8
Federal, Non-R.A.								
Men	5.8	3.1	4.3	14.4	4.6	3.8	4.1	3.3
Women	5.5	3.4	3.5	17.1	4.9	1.4	1.9	3.1
R.A., Fed. & Univ.								
Men	26.3	45.5	49.0	33.3	11.5	1.7	4.0	7.4
Women	13.2	41.4	55.9	27.0	10.4	1.7	3.7	9.3
Teaching Assistant								
Men	17.4	27.1	12.0	12.7	18.8	31.1	5.7	18.1
Women	15.2	31.0	10.4	12.6	14.4	31.7	6.3	18.6
Fellowship								
Men	5.9	5.3	5.7	6.6	7.2	9.7	2.5	6.2
Women	5.5	6.1	8.9	6.6	4.6	12.9	2.3	4.1
Other Sources								
Men	9.1	5.9	13.9	9.8	7.3	4.8	10.0	13.2
Women	6.1	6.9	5.0	6.2	5.3	3.9	7.1	7.0

* From the 1986-87 SED questionnaire, item 18: Personal = Categories a to c, v to x; Federal, Non-R.A. = Categories l to r, 3; R.A., Federal and University = Categories e, i to k; Teaching Assistantship = Category d; Fellowship = Categories f, s to u; Other Sources = Categories g,h,y,z,&.

patterns, except that women were more likely than men to have been primarily self-supported in life and social sciences, education, and professional fields; in three of these fields, women's TTD was somewhat longer than men's.

Citizenship

As Table S showed, in 1987 both RTD and TTD for all fields combined were lowest for non-U.S. citizens with temporary visas (6.1 RTD years; 9.3 TTD years), next for permanent residents (6.8 RTD years; 9.8 TTD years), and highest for U.S. citizens (7.1 RTD years; 10.9 TTD years). Even when field was held constant, temporary residents had RTDs either similar to or shorter than American citizens in all fields, which may have been related to their student-visa status. Student visas generally confer conditions that reduce part-time enrollment and engagement in non-study activities that seem to elongate registered time. First of all, persons with student visas are supposed to be enrolled full-time in the university, unless the academic advisor counsels otherwise, and full-time study is assumed not to elongate RTD. Second, while persons with student visas are permitted to work as part of their practical training, the nature of the visa is such that these students are less likely than the other groups to substitute full-time work activities for study time, thereby shortening both their RTD and TTD.

In both RTD and TTD, temporary visa-holders had the shortest time lapses (frequently by a year or more) in four fields: social sciences, humanities, education, and professional fields. As shown in Appendix A, Table 5 (pages 60-61), these are the fields in which temporary residents were distributed least frequently. On the other hand, where their distribution was more concentrated--in the natural sciences and engineering--temporary residents lagged U.S. citizens in their TTDs by 1 to 1.5 years (RTDs were virtually the same). One possible reason for the lag of temporary residents may have been the older age at start of doctoral study. The People's Republic of China, for instance, is likely to send to the United States an older group of students who already have advanced training; these students tend to concentrate in the physical sciences and engineering, with the result that their TTD is longer than that of Americans.

Sources of support were also examined by field and citizenship. Table U shows a rather consistent pattern of greater institutional support for foreign students. However, this support mechanism does not show the influential effect seen elsewhere.

Race/Ethnicity

Because the racial groups were unevenly distributed across the citizenship groups and citizenship status was assumed to influence time-to-degree, the racial breakout is shown only for U.S. citizens. The group with the shortest RTD and TTD was Asian Americans (6.9 and 9.4 years); the group with the longest was blacks (8.2 RTD and 15.1 TTD years). Once again, the relationship of field to length of time-to-degree was apparent. Upon disaggregation, whites had the shortest RTDs and Hispanics had the shortest TTDs in the majority of fields. However, blacks continued to have lengthy time lapses, especially relative to the majority group, whites. The single exception was in the field of engineering, where blacks had the shortest TTD of all the races. Blacks' RTD and TTD in engineering were the same in 1987, which means that no recipients reported any periods of unenrolled time.

As noted earlier, few recipients reported personal sources of support for degrees in physical sciences and engineering, which appeared related to shorter time lapses in those fields. This phenomenon carries only partially to differences in time lapse among the racial groups. Table V shows the distribution of support sources by field and race/ethnicity for U.S. citizens. In 1987, no black engineers reported personal sources as their major

TABLE U: Percentage Distribution of Primary Sources of Support for Doctorate Recipients, by Citizenship and Broad Field, 1987

Source*/Status	Field of Doctorate							
	Total Fields	Phys. Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
Personal								
U.S.	49.2	16.1	19.5	28.3	60.1	50.9	79.4	60.4
Permanent Visa	33.9	12.0	19.0	27.5	49.2	46.9	61.9	55.3
Temporary Visa	15.4	5.5	9.8	13.6	21.4	29.2	42.5	27.7
Federal, Non-R.A.								
U.S.	6.7	4.2	8.2	18.3	5.0	2.8	2.9	3.8
Permanent Visa	1.7	0.5	0.3	6.4	0.5	0.7	2.9	0.0
Temporary Visa	1.9	1.1	0.9	4.0	3.7	2.7	1.4	1.2
R.A., Fed. & Univ.								
U.S.	18.3	45.5	45.3	30.4	10.7	1.8	3.3	6.4
Permanent Visa	29.7	45.8	55.6	33.9	9.0	0.7	10.8	13.8
Temporary Visa	33.8	43.4	52.6	33.3	13.3	1.9	8.5	13.7
Teaching Assistant								
U.S.	15.3	24.5	9.3	13.1	15.1	30.6	5.9	17.2
Permanent Visa	20.1	31.0	15.7	11.9	25.6	31.5	5.0	23.4
Temporary Visa	21.4	34.5	13.8	11.2	26.1	39.0	8.7	21.0
Fellowship								
U.S.	5.5	5.5	9.1	6.0	5.1	10.9	1.9	4.7
Permanent Visa	5.9	6.5	2.3	8.9	5.5	12.6	3.6	2.1
Temporary Visa	7.2	5.1	3.3	9.0	12.8	12.5	8.7	9.7
Foreign Government								
U.S.	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
Permanent Visa	4.0	2.8	1.0	6.4	4.0	4.2	9.4	2.1
Temporary Visa	12.6	6.8	13.5	17.7	12.6	9.1	17.2	14.6
Other Sources								
U.S.	5.0	4.1	8.5	3.8	3.9	3.0	6.6	7.4
Permanent Visa	4.7	1.4	6.2	5.1	6.0	3.5	6.5	3.2
Temporary Visa	7.7	3.7	6.2	11.2	10.0	5.7	13.0	12.2

* From the 1986-87 SED questionnaire, item 18: Personal = Categories a to c, v to x; Federal, Non-R.A. = Categories l to r, 3; R.A., Federal and University = Categories e, i to k; Teaching Assistantship = Category d; Fellowship = Categories f, s to u; Foreign Government = Category z; Other Sources = Categories g,h,y,&.

TABLE V: Percentage Distribution of Primary Sources of Support for Doctorate Recipients, by Race/Ethnicity and Broad Field, 1987 (U.S. Citizens)

Source*/Status	Field of Doctorate							
	Total Fields	Phys. Sci.	Engi-neering	Life Sci.	Social Sci.	Human-ities	Educa-tion	Prof/ Other
Personal								
Asian	30.4	6.7	21.0	23.1	56.7	54.5	77.1	60.0
Black	64.2	37.5	0.0	38.3	46.3	45.5	82.1	60.0
Hispanic	51.7	10.5	18.2	28.8	60.0	54.8	70.9	65.2
White	49.1	16.0	19.2	28.2	60.7	50.8	79.6	60.5
Federal, Non-R.A.								
Asian	10.1	4.5	4.2	19.4	15.0	9.1	5.7	0.0
Black	6.9	0.0	18.2	20.0	11.1	5.5	3.2	9.1
Hispanic	10.1	8.8	18.2	18.2	10.4	4.1	10.1	0.0
White	6.5	4.1	8.5	18.3	4.4	2.7	2.6	3.5
R.A., Fed. & Univ.								
Asian	34.0	49.4	49.6	35.8	10.0	0.0	5.7	13.3
Black	6.1	16.7	36.4	20.0	8.3	0.0	2.6	3.6
Hispanic	11.3	36.8	27.3	24.2	5.6	1.4	4.4	4.3
White	18.5	45.9	45.5	30.6	11.0	1.8	3.3	6.3
Teaching Assistant								
Asian	13.3	24.7	11.8	9.7	11.7	13.6	5.7	13.3
Black	8.4	16.7	9.1	8.3	13.9	23.6	3.5	9.1
Hispanic	12.6	26.3	4.5	18.2	9.6	26.0	1.9	17.4
White	15.7	24.8	9.2	13.3	15.5	31.3	6.2	17.9
Fellowship								
Asian	7.2	11.2	7.6	3.7	6.7	18.2	0.0	13.3
Black	9.0	16.7	27.3	13.3	9.3	25.5	4.1	10.9
Hispanic	10.1	12.3	27.3	9.1	12.0	9.6	7.0	4.3
White	5.1	5.1	8.6	5.7	4.7	10.4	1.6	4.3
Other Sources								
Asian	5.1	3.4	5.9	8.2	0.0	4.5	5.7	0.0
Black	5.4	12.5	9.1	0.0	11.1	0.0	4.4	7.3
Hispanic	4.2	5.3	4.5	1.5	2.4	4.1	5.7	8.7
White	5.1	4.2	9.1	3.9	3.7	3.0	6.9	7.5

* From the 1986-87 SED questionnaire, item 18: Personal = Categories a to c, v to x; Federal, Non-R.A. = Categories l to r, 3; R.A., Federal and University = Categories e, i to k; Teaching Assistantship = Category d; Fellowship = Categories f, s to u; Other Sources = Categories g,h,y,z,&.

support mechanism; instead, the majority had RAs (36.4 percent) or fellowship aid (27.3 percent). While this would promote the notion that support is an important variable, the results are in fact more mixed. From the distribution of support in Table V, one might also guess that blacks would complete their degrees more quickly in the humanities and social sciences. Black humanists had the smallest percentage of recipients with personal sources of support, the highest with fellowships, and a relatively solid percentage with TAs or federal support. In the social sciences, proportionately fewer blacks relied primarily on personal sources of support. Nonetheless, they completed their doctorate education more slowly than the other groups. The lengthy degree process, coupled with the overall decline of black American Ph.D.s noted earlier, should be a matter of concern to those involved in doctorate education.

Summary

Two measures of time-to-degree were extracted from respondents' educational histories: registered time and total time. By either dimension, time-to-degree has increased approximately 30 percent over the last 20 years, though disaggregated data show that the increases have not been steady and have varied noticeably. The shortest median registered time in 1987 was 5.8 years, in engineering; the longest was 8.4 years, in humanities. The shortest median total time was in physical sciences, 7.4 years; the longest was in education, 16.2 years.

A myriad of factors may influence the length of time it takes to earn a doctorate. Available from the SED database were such variables as field of degree, demographics, sources of support, field-switching, and postgraduation plans, the last a proxy for market demand. Field of degree and field-switching seemed the most pertinent, and support sources were apparently associated with time-to-degree, although a causal relationship was not clear.

The shortest time lapses were in the natural sciences and engineering. Short degree times were also generally associated with fellowships, research assistantships (RAs), and teaching assistantships (TAs). Recipients whose primary support came from their own earnings almost always had the longest time lapses, but support also seems to be field-related, and more research is needed to separate effects. Not surprisingly, time lapse was elongated for recipients who switched fields of study between baccalaureate and Ph.D. The largest difference was for doctorate recipients in the social sciences, where the median total time-to-degree was four years longer for field-switchers than for doctorates who remained in the same field.

Differences in time-to-degree among the demographic groups were also evidenced, although they were moderated when field was held constant. For example, women generally had longer time lapses than men; but in fields where proportionately more women than men received institutional support, their time lapses were usually shorter. In the social sciences and non-science fields, temporary residents had shorter time lapses than U.S. citizens, which may have been in part associated with their student-visa requirements. U.S. citizens had shorter total times-to-degree in the natural sciences and engineering. Blacks experienced lengthy completion times--especially relative to whites--in every field but engineering, where no primary reliance on personal support was reported and institutional support was high.

APPENDIXES

APPENDIX A: The Six Basic Tables

Table titles and headings are generally self-explanatory, but a few terms need special definition or explanation. The survey questionnaire is reproduced on pages 74-76.

Table 1	Number of Doctorate Recipients, by Sex and Subfield, 1987
Table 1A	Number of Doctorate Recipients, by Citizenship, Racial/Ethnic Group, and Subfield, 1987
Table 2	Statistical Profile of Doctorate Recipients, by Field of Doctorate, 1987
Table 3	Sources of Support in Graduate School of Doctorate Recipients, by Sex and Summary Field, 1987
Table 4	State of Doctoral Institution of Doctorate Recipients, by Sex and Summary Field, 1987
Table 5	Statistical Profile of Doctorate Recipients, by Racial/Ethnic Group and Citizenship Status, 1987
Table 6	Institutions Granting Doctorates, by Summary Field, 1987

Tables 1 and 1A: These tables display 1987 data by subfield of doctorate, corresponding to the fields specified in the Specialties List on page 76. The "general" field categories--e.g., "chemistry, general"--contain individuals who either received the doctorate in the general subject area or did not indicate a particular specialty field. The "other" field categories--e.g., "chemistry, other"--include individuals whose specified doctoral discipline was not included among the specialty fields.

Table 2: There are three 2-page tables: one contains data about all doctorate recipients in 1987 and the other two present data by sex. Refer to the inside of the back cover of this report for the codes included in each broad field and to the Specialties List on page 76 for the codes and names of each subfield. Definitions are as follows:

- *Median Age at Doctorate*: One-half received the doctorate at or before this age.
- *Percentage with Master's*: The percentage of doctorate recipients in a field who received a master's degree in any field before earning the doctorate.
- *Median Time Lapse*: "Total Time" refers to total calendar time elapsed between the year of baccalaureate and the year of doctorate; "Registered Time" refers to the total time registered in a university between baccalaureate and doctorate.

Each year's doctorate recipients provide information on postgraduation employment or study plans in response to items 21 and 22 on the survey form. Since the questionnaire is filled out at about the time the doctorate is received, these planned activities can be subject to change. However, comparisons with data from the longitudinal Survey of Doctorate Recipients have shown these data to be a reasonable predictor of actual employment status in the year following the doctorate.[6] Postgraduation plans of the doctorate recipients are grouped as follows: "Postdoctoral Study Plans" (fellowship, research associateship, traineeship, other), "Planned Employment" (educational institution, industry, etc.), or "Postdoctoral Status Unknown." The sum of these lines totals 100 percent for each column, with allowance for rounding: for example, 50.4 percent of all chemists had postdoctoral study plans, 42.0 percent planned to be employed, and 7.6 percent did not report their postgraduation plans; these total 100.0 percent. The study and employment rows are further subdivided--showing that 22.4 percent of all the chemists planned to pursue postdoctoral fellowships; 26.8 percent, research associateships; 0.5 percent, traineeships; and 0.7 percent, some other form of postdoctoral study. The employment row is similarly subdivided; the percentages, listed by type of employer, show that a total of 42.0 percent planned employment.

The four lines of data beginning with "Definite Postdoctoral Study" distinguish between individuals who have definite postgraduation plans (item 21: "Am returning to, or continuing in, predoctoral employment" or "Have signed contract or made definite commitment") and those who are still seeking

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[6] See discussion on page 22 of *Summary Report 1987* and also Lindsey R. Harmon, *A Century of Doctorates: Data Analyses of Growth and Change*, Washington, D.C.: National Academy of Sciences, 1978, pp. 92-93.

employment or postdoctoral study (item 21: "Am negotiating with one or more specific organizations," "Am seeking position but have no specific prospects," or "Other"). These four lines, when added to the prior line, "Postdoctoral Status Unknown," total 100 percent with allowance for rounding. The two lines, "Definite Postdoctoral Study" and "Seeking Postdoctoral Study," add to give the percentage having "Postdoctoral Study Plans"; the two lines, "Definite Employment" and "Seeking Employment," add to give the percentage having "Planned Employment After Doctorate."

Percentages showing the distribution of doctorate recipients by work activity and by region of employment are based on those who have a definite employment commitment. They exclude those still seeking employment and those planning postdoctoral study as described above.

Table 3: Displayed in Table 3 are data reported from item 18 on all sources of financial support during the course of the individuals' graduate education. These data should be interpreted as follows: 603 male doctorate recipients in the physical sciences reported financial support from National Science Foundation research assistantships during graduate school. This number is 14.4 percent of the male physical sciences doctorates who answered the question, and it is 51.0 percent of the males in all fields who reported NSF research assistantship support. Since students indicate multiple sources of support, the vertical percentages sum to more than 100 percent.

Table 4: This table shows the number of persons receiving a doctorate from universities in each of the 50 states, the District of Columbia, and Puerto Rico.

Table 5: Table 5 contains data by racial/ethnic group (first included in *Summary Report 1973*) and by citizenship status for selected variables from Tables 2 and 3.

In 1977 the item on racial/ethnic group in the survey questionnaire was revised to coincide with the question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in federally sponsored surveys; an explanation of the effect of these changes is detailed on page 13 of *Summary Report 1977*. Changes in the OMB guidelines prompted the moving of persons having origins in the Indian subcontinent from the white category to Asian in 1978. In 1980, two survey revisions were made: (1) the category Hispanic was subdivided into Puerto Rican, Mexican American, and "other" Hispanic to provide more detail for users of the racial/ethnic data, and (2) respondents were asked to check only one racial category (prior to 1980, doctorate recipients could check more than one category to indicate their race). However, when the data were compiled, all persons who checked Asian, American Indian, or Hispanic and also checked white were included in the minority-group category; and those whose responses were black as well as any other category were designated as black.

Beginning with the 1982 survey, this item was revised to separate questions on racial and ethnic groups. Respondents are first asked to check one of the four racial group categories (American Indian, Asian, black, or white) and then to indicate Hispanic heritage. For purposes of analysis all respondents who indicated Hispanic heritage, regardless of racial identification, are included in one of three Hispanic groups. The remaining survey respondents are then counted in the respective racial groups.

Table 6: Table 6 is presented for the first time in *Summary Report 1987*. This table displays 1987 data by doctorate-granting institution and field. Institutions are listed alphabetically within state/territory; states/territories also appear in alphabetic order. Refer to the inside of the back cover of this report for the codes included in each summary field and to the Specialties List on page 76 for the codes and names of each subfield.

APPENDIX A, TABLE 1 Number of Doctorate Recipients, by Sex and Subfield, 1987

Subfield of Doctorate	Number of Doctorates		
	Men	Women	Total
TOTAL ALL FIELDS	20908	11370	32278
PHYSICAL SCIENCES	4197	830	5027
MATHEMATICS	615	125	740
Applied Mathematics	102	29	131
Algebra	47	10	57
Analysis and Functional Analysis	80	6	86
Geometry	27	3	30
Logic	16	2	18
Number Theory	13	2	15
Probability and Math Statistics	107	36	143
Topology	38	3	41
Computing Theory and Practice	10	4	14
Operations Research	21	1	22
Mathematics, General	115	22	137
Mathematics, Other	39	7	46
COMPUTER SCIENCE	385	65	450
Computer Sciences	333	51	384
Information Sciences and Systems	52	14	66
PHYSICS AND ASTRONOMY	1116	120	1236
Astronomy	39	7	46
Astrophysics	48	6	54
Acoustics	17		17
Atomic and Molecular	75	4	79
Electron	6		6
Elementary Particles	144	15	159
Fluids	21		21
Nuclear	70	4	74
Optics	45	5	50
Plasma	65	5	70
Polymer	12	3	15
Solid State	263	24	287
Physics, General	209	31	240
Physics, Other	102	16	118
CHEMISTRY	1568	406	1974
Analytical	242	72	314
Inorganic	181	59	240
Nuclear	13		13
Organic	422	88	510
Pharmaceutical	48	16	64
Physical	243	59	302
Polymer	83	13	96
Theoretical	29	17	46
Chemistry, General	245	54	299
Chemistry, Other	62	28	90
EARTH, ATMOSPHERIC AND MARINE SCI	513	114	627
Atmospheric Physics and Chemistry	20	4	24
Atmospheric Dynamics	14	3	17
Meteorology	17		17
Atmos and Meteorological Sci, Gen	12	4	16
Atmos and Meteorological Sci, Other	10	3	13
Geology	89	25	114
Geochemistry	22	9	31
Geophysics and Seismology	63	11	74
Paleontology	16	5	21
Mineralogy, Petrology	16	8	24
Stratigraphy, Sedimentation	20	2	22
Geomorphology and Glacial Geology	16	2	18
Applied Geology	4	1	5
Geological Sciences, General	15	3	18
Geological Sciences, Other	24	5	29
Environmental Sciences	23	6	29
Hydrology and Water Resources	13	5	18
Oceanography	60	13	73
Marine Sciences	35	3	38
Physical Sciences, Other	24	2	26
ENGINEERING	3474	242	3716
Aerospace, Aeronaut & Astronaut	132	10	142
Agricultural	71	3	74
Bioengineering and Biomedical	60	15	75
Ceramic	38	4	42
Chemical	472	56	528
Civil	424	17	441
Communications	26		26
Computer	59	2	61
Electrical, Electronics	662	30	692
Engineering Mechanics	110	3	113
Engineering Physics	12	1	13
Engineering Science	26		26
Environmental Health Engineering	35	1	36
Industrial	107	13	120
Materials Science	202	36	238
Mechanical	530	14	544
Metallurgical	107	5	112
Mining and Mineral	26	1	27
Naval Architecture, Marine Eng	7		7
Nuclear	85	2	87
Ocean	23	1	24
Operations Research	44	7	51
Petroleum	23		23
Polymer	30	4	34
Systems Engineering	43	3	46
Engineering, General	47	8	55
Engineering, Other	73	6	79
LIFE SCIENCES	3722	2020	5742
BIOLOGICAL SCIENCES	2474	1350	3824
Biochemistry	374	198	572
Biophysics	64	22	86
Bacteriology	7	6	13
Plant Genetics	18	7	25
Plant Pathology	23	10	33
Plant Physiology	47	15	62
Botany, Other	71	36	107
Anatomy	49	41	90
Biometrics and Biostatistics	23	14	37
Cell Biology	72	55	127
Ecology	120	38	158
Embryology	6		6
Endocrinology	8	11	19
Entomology	98	25	123
Immunology	83	52	135
Molecular Biology	187	115	302
Microbiology	198	101	299
Neurosciences	105	47	152
Nutritional Sciences	44	96	140
Parasitology	11	5	16
Toxicology	81	34	115
Human and Animal Genetics	60	54	114
Human and Animal Pathology	78	46	124
Human and Animal Pharmacology	147	86	233
Human and Animal Physiology	171	74	245
Zoology, Other	95	44	139
Biological Sciences, General	146	82	228
Biological Sciences, Other	88	36	124
HEALTH SCIENCES	329	477	806
Audiology and Speech Pathology	32	75	107
Environmental Health	20	9	29
Public Health	44	52	96
Epidemiology	39	47	86
Nursing	11	203	214
Pharmacy	105	31	136
Veterinary Medicine	26	5	31
Health Sciences, General	11	8	19
Health Sciences, Other	41	47	88
AGRICULTURAL SCIENCES	919	193	1112
Agricultural Economics	113	23	136
Animal Breeding and Genetics	20	3	23
Animal Nutrition	69	13	82
Animal Sciences, Other	61	16	77
Agronomy	126	17	143
Plant Breeding and Genetics	59	11	70
Plant Pathology	54	22	76
Plant Sciences, Other	17	3	20
Food Sciences	83	48	131
Soil Sciences	67	7	74
Horticulture Science	55	16	71
Fisheries Science	32		32
Wildlife Management	22	1	23
Forestry Science	95	5	100
Agriculture, General	5		5
Agriculture, Other	41	8	49

Subfield of Doctorate	Number of Doctorates		
	Men	Women	Total
SOCIAL SCIENCES (INCL PSYCH)	3269	2449	5718
Anthropology	171	181	352
Area Studies	12	5	17
Criminology	22	7	29
Demography	19	7	26
Economics	662	136	798
Econometrics	21	4	25
Geography	86	25	111
International Relations	69	15	84
Political Science and Government	294	111	405
Public Policy Studies	50	30	80
Sociology	255	168	423
Statistics	36	13	49
Urban Studies	50	22	72
Social Sciences, General	24	6	30
Social Sciences, Other	52	67	119
PSYCHOLOGY	1446	1652	3098
Clinical	526	628	1154
Cognitive	39	41	80
Comparative	3	6	9
Counseling	233	252	485
Developmental	61	139	200
Experimental	92	54	146
Educational	39	50	89
Industrial and Organizational	55	49	104
Personality	13	11	24
Physiological	37	32	69
Psychometrics	6	3	9
Quantitative	6	7	13
School	40	53	93
Social	61	72	133
Psychology, General	164	172	336
Psychology, Other	71	83	154
HUMANITIES	1930	1574	3504
History, American	131	66	197
History, European	74	48	122
History of Science	15	10	25
History, General	64	31	95
History, Other	101	47	148
Classics	29	26	55
Comparative Literature	51	70	121
Linguistics	93	107	200
Speech and Debate	22	15	37
Letters, General	10	15	25
Letters, Other	21	18	39
American Studies	36	39	75
Archeology	14	17	31
Art History and Criticism	41	102	143
Music	336	164	500
Philosophy	184	50	234
Religion	142	39	181
Theatre	54	28	82
LANGUAGE AND LITERATURE	476	637	1113
American	84	106	190
English	210	269	479
French	27	76	103
German	35	42	77
Italian	8	13	21
Spanish	44	89	133
Russian	8	11	19
Slavic	2	3	5
Chinese	11	2	13
Japanese	4	5	9
Hebrew	9	4	13
Arabic	7	1	8
Other Languages	27	16	43
Humanities, General	10	13	23
Humanities, Other	26	32	58

Subfield of Doctorate	Number of Doctorates		
	Men	Women	Total
PROFESSIONAL FIELDS	1384	679	2063
BUSINESS ADMINISTRATION	751	229	980
Accounting	124	37	161
Banking and Finance	127	28	155
Business Admin and Management	167	57	224
Business Economics	25	2	27
Marketing Management and Research	80	33	113
Business Statistics	7	1	8
Operations Research	53	11	64
Organizational Behavior	33	32	65
Business and Management, General	63	12	75
Business and Management, Other	72	16	88
COMMUNICATIONS	166	143	309
Communications Research	56	34	90
Journalism	4	3	7
Radio and Television	11	5	16
Communications, General	58	44	102
Communications, Other	37	57	94
OTHER PROFESSIONAL FIELDS	467	307	774
Architecture, Environmental Design	27	6	33
Home Economics	7	60	67
Law	21	6	27
Library and Archival Science	10	38	48
Public Administration	59	19	78
Social Work	97	117	214
Theology	217	36	253
Professional Fields, General		1	1
Professional Fields, Other	29	24	53
EDUCATION	2897	3550	6447
Curriculum and Instruction	282	479	761
Educational Admin and Supervision	902	783	1685
Educational Media	32	36	68
Educational Statistics and Research	33	40	73
Educational Testing, Eval and Meas	17	20	37
Educational Psychology	128	187	315
School Psychology	44	51	95
Social Foundations	58	56	114
Special Education	63	185	248
Student Counseling, Personnel Serv	139	176	315
Higher Education	261	307	568
Pre-elementary Education	9	64	73
Elementary Education	20	85	105
Junior High Education		1	1
Secondary Education	35	30	65
Adult and Continuing Education	79	125	204
TEACHING FIELDS	487	578	1065
Agricultural Education	34	5	39
Art Education	19	33	52
Business Education	15	21	36
English Education	18	54	72
Foreign Languages Education	21	16	37
Health Education	30	61	91
Home Economics Education		17	17
Industrial Arts Education	20	4	24
Mathematics Education	36	38	74
Music Education	53	56	109
Nursing Education		36	36
Physical Education	112	80	192
Reading Education	12	82	94
Science Education	40	23	63
Social Science Education	8	9	17
Speech Education	1	4	5
Trade and Industrial Education	49	20	69
Other Teaching Fields	19	19	38
Education, General	177	192	369
Education, Other	131	155	286
OTHER AND UNSPECIFIED	35	26	61

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 1A Number of Doctorate Recipients, by Citizenship, Racial/Ethnic Group, and Subfield, 1987

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas								
			Racial/Ethnic Group[1]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mexican Amer.	Other Hispanic	Other & Unk
TOTAL ALL FIELDS	32278[2]	5593	24433	115	1162	904	21007	180	179	350	536
PHYSICAL SCIENCES	5027	1363	3341	10	228	35	2893	33	12	31	99
MATHEMATICS	740	301	396		41	11	319	6		5	14
Applied Mathematics	131	48	82		13	2	64	1		2	
Algebra	57	24	32		2		27			1	2
Analysis and Functional Analysis	86	42	43		2	1	37	1			2
Geometry	30	19	11				11				
Logic	18	8	10		1		9				
Number Theory	15	4	11			1	10				
Probability and Math Statistics	143	58	79		13	4	58	1		1	2
Topology	41	10	31		1		26	2			2
Computing Theory and Practice	14	3	11		3		8				
Operations Research	22	10	12		2		9				1
Mathematics, General	137	59	46		2	2	36	1			5
Mathematics, Other	46	16	28		2	1	24			1	
COMPUTER SCIENCE	450	142	275	3	26	2	229	1	1	2	11
Computer Sciences	384	122	235	2	21	1	197	1	1	2	10
Information Sciences and Systems	66	20	40	1	5	1	32				1
PHYSICS AND ASTRONOMY	1236	397	754	1	35	7	675		5	7	24
Astronomy	46	10	33			1	32				
Astrophysics	54	13	40		1	1	37				1
Acoustics	17	4	13				13				
Atomic and Molecular	79	24	55		2		45		3	2	3
Electron	6		6				6				
Elementary Particles	159	54	104		5	2	92				5
Fluids	21	10	11				9				2
Nuclear	74	24	50		4		44			1	1
Optics	50	14	36				36				
Plasma	70	21	48		3		45				
Polymer	15	5	10				9				1
Solid State	287	112	173		6	2	158		1	2	4
Physics, General	240	72	99	1	8	1	82			2	5
Physics, Other	118	34	76		6		67		1		2
CHEMISTRY	1974	399	1467	6	108	13	1263	26	4	14	33
Analytical	314	56	257		11	4	232	6		2	2
Inorganic	240	39	197		9	3	176	1	1	4	3
Nuclear	13	1	12		1		11				
Organic	510	104	399	2	26	3	343	11		3	11
Pharmaceutical	64	15	46	1	5		38	1	1		
Physical	302	63	239	1	20	2	201	4	1	2	8
Polymer	96	32	64		10	1	50				3
Theoretical	46	7	39		4		34	1			
Chemistry, General	299	65	146	1	18		120	2	1	1	3
Chemistry, Other	90	17	68	1	4		58			2	3
EARTH, ATMOSPHERIC AND MARINE SCI	627	124	449		18	2	407		2	3	17
Atmospheric Physics and Chemistry	24	3	15				15				
Atmospheric Dynamics	17	4	12		2		9		1		
Meteorology	17	6	11		2		8				1
Atmos and Meteorological Sci, Gen	16	7	7				7				
Atmos and Meteorological Sci, Other	13	5	8			1	5				2
Geology	114	16	84		3		79				2
Geochemistry	31	8	22		1		18			1	2
Geophysics and Seismology	74	26	44		4		38		1		1
Paleontology	21	2	17		1		16				
Mineralogy, Petrology	24	2	22		2		20				
Stratigraphy, Sedimentation	22	1	21		1		18				2
Geomorphology and Glacial Geology	18	2	16				16				
Applied Geology	5	3	2				2				
Geological Sciences, General	18	4	13				12				1
Geological Sciences, Other	29	4	25		1		24				
Environmental Sciences	29	3	24		1	1	22				
Hydrology and Water Resources	18	6	11				11				
Oceanography	73	13	49				46			2	1
Marine Sciences	38	6	31				27				4
Physical Sciences, Other	26	3	15				14				1
ENGINEERING	3716	1532	1908	7	326	25	1453	4	8	22	63
Aerospace, Aeronaut & Astronaut	142	59	72		10	1	59			1	1
Agricultural	74	31	41			1	39				1
Bioengineering and Biomedical	75	18	54		3	2	45	1	1		2
Ceramic	42	11	30		4		25				1

1/ For an explanation of racial/ethnic groups see items 9 and 10 on questionnaire on page 74 and description on pages 44-45.
2/ Includes 2,252 individuals who did not report their citizenship at time of doctorate.

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas								
			Racial/Ethnic Group[1/]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mex-ican Amer.	Other His-panic	Other & Unk
Chemical	528	182	328	1	48	3	257	1	1	9	8
Civil	441	219	182		30	4	142		1		5
Communications	26	14	12		6		6				
Computer	61	32	29		5		20		1		3
Electrical, Electronics	692	263	350	3	67	3	255	2		3	17
Engineering Mechanics	113	56	52		7	1	44				
Engineering Physics	13		13				13				
Engineering Science	26	8	15		1	2	12				
Environmental Health Engineering	36	13	21	1	4		16				
Industrial	120	56	57		6		47		1		3
Materials Science	238	96	130		25	2	100		1	1	1
Mechanical	544	247	255	1	54	2	185		1	4	8
Metallurgical	112	52	54		15	2	31		1	1	4
Mining and Mineral	27	10	15	1	3	1	10				
Naval Architecture, Marine Eng	7	2	3				3				
Nuclear	87	34	41		11		27			1	2
Ocean	24	14	8		2		4			1	1
Operations Research	51	15	34		7		26			1	
Petroleum	23	13	9		3	1	5				
Polymer	34	21	13		8		5				
Systems Engineering	46	22	21		1		20				
Engineering, General	55	14	31		5		24				2
Engineering, Other	79	30	38		1		33				4
LIFE SCIENCES	5742	917	4475	16	249	107	3910	28	16	46	103
BIOLOGICAL SCIENCES	3824	489	3130	11	169	60	2750	18	10	34	78
Biochemistry	572	95	449		29	6	390	5	2	7	10
Biophysics	86	18	61		3		54	2		1	1
Bacteriology	13	1	10				10				
Plant Genetics	25	3	22				22				
Plant Pathology	33	10	23				23				
Plant Physiology	62	9	52	1	4	1	41		1		4
Botany, Other	107	14	86		3	2	80			1	
Anatomy	90	7	80	1	3		72	1	1		2
Biometrics and Biostatistics	37	7	28		3	2	22				1
Cell Biology	127	9	116		2	2	111			1	
Ecology	158	13	140	2	3	2	129			1	3
Embryology	6	2	4				3				1
Endocrinology	19	4	14				14				
Entomology	123	25	88		3	1	83				1
Immunology	135	19	113		5		102	1		1	4
Molecular Biology	302	47	249	2	18	5	213			1	10
Microbiology	299	45	239	1	12	5	209	1	1	3	7
Neurosciences	152	10	137	1	5	3	123		1	1	3
Nutritional Sciences	140	20	111		5	7	92	1	1	4	1
Parasitology	16	1	14			2	12				
Toxicology	115	4	110	1	6	5	94			3	1
Human and Animal Genetics	114	10	97		5	2	88				2
Human and Animal Pathology	124	14	103		11		87	2		1	2
Human and Animal Pharmacology	233	21	201		20	1	170	1	1	2	6
Human and Animal Physiology	245	24	207	1	8	2	184	1	1	3	7
Zoology, Other	139	11	120		2	5	106	1		2	4
Biological Sciences, General	228	31	158	1	10	4	136		1		6
Biological Sciences, Other	124	15	98		9	3	80	2		2	2
HEALTH SCIENCES	806	96	636	3	35	31	544	3	3	5	12
Audiology and Speech Pathology	107	8	95		4	5	81	1	1	1	2
Environmental Health	29	4	23			2	21				
Public Health	96	12	77	1	2	4	68		1		1
Epidemiology	86	9	72		5	3	58		1	3	2
Nursing	214	5	200	2	4	11	178	1			4
Pharmacy	136	34	81		17	3	59				2
Veterinary Medicine	31	11	19		1	1	17				
Health Sciences, General	19	2	3				3				
Health Sciences, Other	88	11	66		2	2	59	1		1	1
AGRICULTURAL SCIENCES	1112	332	709	2	45	16	616	7	3	7	13
Agricultural Economics	136	45	79		7	3	64	1		1	3
Animal Breeding and Genetics	23	9	14		1		12				1
Animal Nutrition	82	16	64		1		59	1		2	1
Animal Sciences, Other	77	20	53			3	48	1	1		
Agronomy	143	46	86		4	1	79	1			1
Plant Breeding and Genetics	70	18	51		1	1	47			1	1
Plant Pathology	76	21	50	1	4	1	43				1
Plant Sciences, Other	20	10	9		1		7			1	
Food Sciences	131	53	70		17	2	47	2			2
Soil Sciences	74	27	41		4	2	34			1	
Horticulture Science	71	18	48		3	2	42				1
Fisheries Science	32	4	25		1		23			1	
Wildlife Management	23	1	21				21				
Forestry Science	100	21	72	1	1	1	67		1		1
Agriculture, General	5	2	1				1				
Agriculture, Other	49	21	25				22	1	1		1

APPENDIX A, TABLE 1A (Continued)

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas								
			Racial/Ethnic Group[1/]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mex-ican Amer.	Other His-panic	Other & Unk
SOCIAL SCIENCES (INCL PSYCH)	5718	650	4595	22	143	168	4013	21	45	93	90
Anthropology	352	21	304	1	12	9	255		3	10	14
Area Studies	17	2	12			2	10				
Criminology	29	2	23		1	1	18			3	
Demography	26	15	11		1		10				
Economics	798	249	482		42	14	402	1	2	10	11
Econometrics	25	15	10				10				
Geography	111	23	82		2	4	72			2	2
International Relations	84	21	58	2	1	3	47	1		2	2
Political Science and Government	405	77	287		9	18	243	1	3	6	7
Public Policy Studies	80	14	62			4	50	1	3	2	2
Sociology	423	54	334	2	18	12	284	2	4	4	8
Statistics	49	25	21		5		15		1		
Urban Studies	72	18	43	1	2	6	31				3
Social Sciences, General	30	12	18			1	15		1		1
Social Sciences, Other	119	19	95		3	2	87		1	1	1
PSYCHOLOGY	3098	83	2753	16	47	92	2464	15	27	53	39
Clinical	1154	20	1047	5	22	44	926	7	7	25	11
Cognitive	80	6	72		2	1	67			1	1
Comparative	9		9				9				
Counseling	485	6	468	3	5	16	417	4	11	5	7
Developmental	200	8	189	1	2	3	173	1	1	3	5
Experimental	146	7	137		2		133	1			1
Educational	89	3	81	1	3	1	73		1	1	1
Industrial and Organizational	104	3	100		1	3	91		1	2	2
Personality	24	1	23			2	20			1	
Physiological	69	6	63		1		56			4	2
Psychometrics	9		9		1		8				
Quantitative	13	1	12				12				
School	93	3	88			2	83	2		1	
Social	133	7	126		4	8	108		5	1	
Psychology, General	336	8	188	5	4	10	157			5	7
Psychology, Other	154	4	141	1		2	131		1	4	2
HUMANITIES	3504	327	2908	11	60	81	2571	31	18	73	63
History, American	197	4	190			13	170	2	2		3
History, European	122	8	114	1			109		1	2	1
History of Science	25	2	23			2	21				
History, General	95	9	59		1	6	46	1		1	4
History, Other	148	22	123		9	6	102	2	1	1	2
Classics	55	4	48				47				1
Comparative Literature	121	13	95	1	5	1	82	1	1	1	3
Linguistics	200	67	118		7	2	100	2		4	3
Speech and Debate	37	2	35		1		34				
Letters, General	25	3	22				21			1	
Letters, Other	39	2	34		2		28	1		1	2
American Studies	75	2	71	1	1	4	64				1
Archeology	31	4	26				24		1	1	
Art History and Criticism	143	12	127	1		3	113	1		2	7
Music	500	26	405	2	14	7	370	2	2	3	5
Philosophy	234	34	187	1	3	2	162	4		6	9
Religion	181	13	151		3	4	139		1	2	2
Theatre	82	4	74		1		70		1	2	
LANGUAGE AND LITERATURE	1113	89	944	4	12	28	815	14	7	46	18
American	190	9	177	3	2	11	158		1	1	1
English	479	27	413	1	3	8	387		3	1	10
French	103	10	89		1	7	79				2
German	77	15	53				51				2
Italian	21	4	15			1	13	1			
Spanish	133	15	111			1	50	13	3	43	1
Russian	19		19				19				
Slavic	5		4				4				
Chinese	13	2	11		2		9				
Japanese	9	1	8		3		5				
Hebrew	13	1	11				11				
Arabic	8	1	6				5				1
Other Languages	43	4	27		1		24			1	1
Humanities, General	23	2	17			1	16				
Humanities, Other	58	5	45		1	2	38	1	1		2

1/ For an explanation of racial/ethnic groups see items 9 and 10 on questionnaire on page 74 and description on pages 44-45.

Subfield of Doctorate	Total Doctorates	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas								
			Racial/Ethnic Group[1/]								
			Total	Amer. Ind.	Asian	Black	White	Puerto Rican	Mex-ican Amer.	Other His-panic	Other & Unk
PROFESSIONAL FIELDS	2063	371	1520	8	60	73	1327	10	7	9	26
BUSINESS ADMINISTRATION	980	228	674	3	45	27	582		3	3	11
Accounting	161	28	129	1	6	4	115			1	2
Banking and Finance	155	56	96		14	2	79				1
Business Admin and Management	224	42	136		6	11	116		1		2
Business Economics	27	7	18	1	2		15				
Marketing Management and Research	113	29	79	1	5	2	70				1
Business Statistics	8	2	6		2		4				
Operations Research	64	25	36		3	2	29		1		1
Organizational Behavior	65	4	60			4	54		1	1	
Business and Management, General	75	15	48		5	1	39				3
Business and Management, Other	88	20	66		2	1	61			1	1
COMMUNICATIONS	309	38	255	1	6	12	226	3	2	2	3
Communications Research	90	9	78		1	3	71	2			1
Journalism	7	3	3			1	2				
Radio and Television	16	2	14				13				1
Communications, General	102	16	79		2	6	70				1
Communications, Other	94	8	81	1	3	2	70	1	2	2	
OTHER PROFESSIONAL FIELDS	774	105	591	4	9	34	519	7	2	4	12
Architecture, Environmental Design	33	16	15			1	12				2
Home Economics	67	9	56		1	3	51				1
Law	27	15	7			1	5				1
Library and Archival Science	48	7	38	1		1	36				
Public Administration	78	12	50		1	6	42	1			
Social Work	214	13	175	1	4	15	142	5	1	1	6
Theology	253	25	205	2	2	4	193	1	1	1	1
Professional Fields, General	1		1				1				
Professional Fields, Other	53	8	44		1	3	37			2	1
EDUCATION	6447	418	5645	41	95	413	4803	53	73	76	91
Curriculum and Instruction	761	63	679	5	16	44	565	13	9	12	15
Educational Admin and Supervision	1685	61	1541	12	19	142	1297	8	33	16	14
Educational Media	68	15	52	1	2	1	45	1		1	1
Educational Statistics and Research	73	4	67	1	1	3	58	1		2	1
Educational Testing, Eval and Meas	37	5	31		3	1	27				
Educational Psychology	315	28	280		5	6	256		2	4	7
School Psychology	95	1	90		1	5	81	1		2	
Social Foundations	114	16	90	1		6	75	2	3	2	1
Special Education	248	13	224	2	1	13	197	1	3	3	4
Student Counseling, Personnel Serv	315	5	288	3	4	29	239	4	1	3	5
Higher Education	568	24	525	6	6	45	452	4	3	4	5
Pre-elementary Education	73	5	56		1	10	43		1		1
Elementary Education	105	6	97			8	82		1	2	4
Junior High Education	1		1				1				
Secondary Education	65	6	53			5	46			2	
Adult and Continuing Education	204	15	185	1	6	6	159	1	1	4	7
TEACHING FIELDS	1065	101	919	5	21	48	807	8	5	9	16
Agricultural Education	39	10	27	1		2	22		1		1
Art Education	52	9	41		2		35			1	3
Business Education	36		35	1	2	4	28				
English Education	72	6	64			6	57				1
Foreign Languages Education	37	7	30		3	2	17	1	2	3	2
Health Education	91	3	83		2	4	72	1	1		3
Home Economics Education	17	2	15			1	12	1			1
Industrial Arts Education	24	1	23		2		21				
Mathematics Education	74	9	65		1	2	59	1		1	1
Music Education	109	5	98		1	8	89				
Nursing Education	36	1	34			2	32				
Physical Education	192	25	158	3	3	5	142	2		1	2
Reading Education	94	3	89		1	5	82	1			
Science Education	63	10	52			1	48	1		2	
Social Science Education	17	1	16		2	1	11				2
Speech Education	5		5				5				
Trade and Industrial Education	69	5	56		2	4	49			1	
Other Teaching Fields	38	4	28			1	26		1		
Education, General	369	31	231	3	7	25	171	3	7	6	9
Education, Other	286	19	236	1	2	16	202	6	4	4	1
OTHER AND UNSPECIFIED	61	15	41		1	2	37				1

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 2 Statistical Profile of Doctorate Recipients, by Field of Doctorate, 1987[1/]

Total All Doctorates

		1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos. and Marine Sci.	Physical Sciences	Mathematics	Computer Sciences	Engineering	EMP Fields	Biochemistry	Other Biosciences	Biosciences	Health Sciences	Agricultural Sciences	Life Sciences
Number in Field		32278	1236	1974	627	3837	740	450	3716	8743	572	3252	3824	806	1112	5742
Male	%	64.8	90.3	79.4	81.8	83.3	83.1	85.6	93.5	87.7	65.4	64.6	64.7	40.8	82.6	64.8
Female		35.2	9.7	20.6	18.2	16.7	16.9	14.4	6.5	12.3	34.6	35.4	35.3	59.2	17.4	35.2
U.S. Citizenship	%	70.8	56.5	69.7	67.6	65.1	46.6	54.0	41.8	53.1	75.2	78.1	77.7	73.9	58.5	73.5
Non-U.S., Permanent Visa		4.9	4.5	4.6	4.0	4.5	6.9	7.1	9.5	7.0	3.3	4.3	4.2	5.0	5.2	4.5
Non-U.S., Temporary Visa		17.3	32.1	20.2	19.8	24.0	40.7	31.6	41.2	33.1	16.6	12.1	12.8	11.9	29.9	16.0
Unknown		7.0	6.9	5.5	8.6	6.4	5.8	7.3	7.4	6.9	4.9	5.4	5.4	9.2	6.4	6.1
Married	%	57.2	47.1	51.8	56.0	51.0	51.1	55.1	58.4	54.4	49.0	54.7	53.8	57.1	66.5	56.7
Not Married		34.0	44.6	42.0	33.8	41.5	39.9	35.3	31.4	36.8	44.1	38.1	39.0	32.4	25.1	35.4
Unknown		8.8	8.3	6.2	10.2	7.5	9.1	9.6	10.1	8.9	7.0	7.2	7.2	10.5	8.5	7.9
Median Age at Doct.	Yrs	33.6	30.0	29.0	31.9	29.8	30.8	31.7	31.0	30.4	29.6	31.1	30.8	35.6	32.7	31.7
Percent with Bacc in Same Field as Doctorate		54.9	73.1	79.9	48.5	72.6	73.0	20.2	75.2	71.1	24.0	60.7	55.2	53.0	59.2	55.6
Percent with Masters		78.5	65.8	37.3	74.8	52.6	75.0	81.6	85.6	70.0	32.2	53.7	50.4	81.8	90.2	62.5
Median Time Lapse From Bacc to Doct																
Total Time	Yrs	10.4	7.3	6.5	9.0	7.1	7.9	9.1	8.1	7.6	7.1	8.3	8.1	12.2	9.5	8.7
Registered Time		6.9	6.3	5.5	6.8	5.9	6.3	6.6	5.8	5.9	6.1	6.6	6.5	7.0	6.3	6.5
Postdoctoral Study Plans	%	22.8	57.1	50.4	36.5	50.3	23.5	10.9	19.4	32.9	80.1	66.1	68.2	16.5	23.4	52.2
Fellowship		10.8	18.9	22.4	15.8	20.2	8.1	1.6	5.4	11.9	51.4	38.5	40.4	8.9	7.5	29.6
Research Assoc		9.5	37.1	26.8	19.5	29.0	12.8	6.9	12.2	19.3	23.8	19.8	20.4	5.1	14.7	17.2
Traineeship		0.9	0.7	0.5	0.5	0.5	2.2	1.3	1.2	1.0	0.9	2.1	1.9	0.7	0.8	1.5
Other Study		1.4	0.4	0.7	0.8	0.6	0.4	1.1	0.5	0.6	4.0	5.7	5.4	1.7	0.4	3.9
Planned Employment After Doctorate	%	67.1	32.8	42.0	52.2	40.7	65.4	78.9	68.2	56.4	13.1	26.8	24.7	72.8	66.6	39.6
Educ Institution [2/]		39.8	10.2	7.8	24.2	11.3	48.4	49.3	25.1	22.3	4.0	13.2	11.8	43.1	34.6	20.6
Industry/Business		13.0	15.1	29.8	13.2	22.4	10.5	23.6	32.5	25.7	7.2	5.8	6.0	10.9	14.8	8.4
Government		6.4	4.8	2.4	12.1	4.8	2.4	2.4	7.3	5.5	0.3	4.5	3.8	8.9	12.4	6.2
Nonprofit		4.5	1.0	0.7	0.8	0.8	1.1	1.1	1.0	0.9	0.9	1.5	1.4	6.7	1.5	2.2
Other & Unknown		3.4	1.7	1.2	1.8	1.5	3.0	2.4	2.3	2.0	0.7	1.9	1.7	3.2	3.2	2.2
Postdoc Status Unknown	%	10.1	10.1	7.6	11.3	9.0	11.1	10.2	12.4	10.7	6.8	7.1	7.1	10.7	10.0	8.2
Definite Postdoct Study	%	16.7	45.1	40.7	26.0	39.7	16.1	7.3	11.6	24.1	68.2	52.6	55.0	12.3	15.0	41.2
Seeking Postdoct Study		6.0	12.1	9.7	10.5	10.6	7.4	3.6	7.8	8.8	11.9	13.4	13.2	4.2	8.4	11.0
Definite Employment		48.4	22.9	32.5	40.5	30.7	46.2	58.9	47.3	40.5	8.4	17.7	16.3	56.0	48.1	28.1
Seeking Employment		18.7	9.9	9.5	11.6	10.0	19.2	20.0	20.9	15.9	4.7	9.0	8.4	16.9	18.5	11.5
Employment Activity After Doctorate																
Primary Activity																
R & D	%	27.8	67.5	73.8	57.9	68.9	38.9	57.4	64.8	63.1	60.4	50.3	51.0	34.4	58.7	48.9
Teaching		36.9	17.7	15.0	20.9	16.9	50.6	32.1	21.2	23.4	22.9	26.0	25.8	38.4	18.5	26.9
Administration		13.4	1.8	2.5	3.1	2.5	1.5	1.1	1.8	1.9	2.1	4.7	4.5	10.9	4.5	6.3
Prof. Services		13.2	4.9	3.0	8.7	4.7	2.9	4.2	5.4	4.8	6.3	10.2	9.9	10.6	4.9	8.4
Other		2.4	2.1	1.2	4.3	2.1	1.5	1.1	1.5	1.7	4.2	3.6	3.7	2.2	4.5	3.5
Secondary Activity																
R & D		25.2	16.6	13.7	24.0	16.6	39.5	26.4	19.5	21.0	20.8	23.6	23.4	35.0	21.1	25.9
Teaching		14.0	8.8	3.6	17.7	7.9	22.5	32.1	15.6	14.9	4.2	15.1	14.2	13.7	18.7	15.6
Administration		9.3	9.2	16.4	7.1	12.6	2.0	4.9	8.5	9.0	10.4	13.7	13.4	10.6	11.0	11.9
Prof. Services		7.2	4.9	6.1	7.5	6.1	3.2	3.8	5.6	5.4	0.0	6.6	6.1	7.8	6.4	6.6
Other		2.2	0.7	1.4	0.8	1.1	0.9	0.4	0.9	0.9	0.0	2.4	2.2	0.9	1.9	1.7
No Secondary Activity		35.8	53.7	54.4	37.8	50.6	27.2	28.3	44.7	43.7	60.4	33.4	35.5	28.4	32.0	32.3
Activity(ies) Unknown		6.2	6.0	4.5	5.1	5.0	4.7	4.2	5.3	5.1	4.2	5.2	5.1	3.5	9.0	6.0
Region of Employment After Doctorate																
New England	%	6.2	8.8	8.4	3.5	7.5	5.3	6.0	6.6	6.7	6.3	4.9	5.0	3.3	2.2	3.6
Middle Atlantic		14.4	17.3	23.8	6.7	18.6	12.3	21.5	15.5	16.7	22.9	11.3	12.2	11.8	5.6	9.9
East No Central		13.6	6.0	19.2	8.3	13.7	11.7	17.4	10.8	12.3	16.7	12.5	12.8	15.3	9.3	12.4
West No Central		6.2	2.1	5.1	5.1	4.4	8.5	3.4	3.3	4.2	8.3	6.2	6.4	5.1	12.5	8.1
South Atlantic		14.8	12.0	11.7	15.0	12.5	12.9	10.9	11.3	11.8	14.6	14.0	14.1	17.3	8.2	13.0
East So Central		4.3	2.5	3.3	4.3	3.3	4.4	3.4	3.4	3.4	0.0	2.9	2.7	5.1	4.5	4.0
West So Central		7.7	3.9	5.5	12.6	6.6	5.8	5.7	6.1	6.2	2.1	8.1	7.7	11.5	5.6	8.1
Mountain		5.1	8.1	2.2	10.6	5.4	4.1	6.4	6.0	5.7	2.1	5.2	5.0	4.7	5.8	5.2
Pacific & Insular		10.2	19.1	7.8	16.1	12.3	11.1	14.0	13.3	12.8	16.7	12.0	12.3	9.3	8.0	10.1
Foreign		10.1	14.8	6.4	13.8	10.0	17.5	7.2	17.2	14.1	8.3	16.3	15.7	10.4	33.3	20.0
Region Unknown		7.5	5.3	6.7	3.9	5.8	6.4	4.2	6.4	6.0	2.1	6.6	6.2	6.2	4.9	5.8

1/ Refer to explanatory note on pages 44-45 and the description of doctoral fields inside back cover.
2/ Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.

Psychology	Economics	Anthropology and Sociology	Political Sci. & Internat'l Rel.	Other Social Sciences	Social Sciences Inc. Psychology	Total Sciences	History	Eng. and Amer. Lang. and Lit.	Foreign Lang. and Lit.	Other Humanities	Humanities	Business and Management	Other Professional Fields	Education	Total Non-Sciences	Other or Unspecified 3/
3098	823	775	489	533	5718	20203	587	669	444	1804	3504	980	1083	6447	12014	61
46.7	83.0	55.0	74.2	65.9	57.2	72.6	65.6	43.9	41.0	59.3	55.1	76.6	58.4	44.9	51.7	57.4
53.3	17.0	45.0	25.8	34.1	42.8	27.4	34.4	56.1	59.0	40.7	44.9	23.4	41.6	55.1	48.3	42.6
87.0	50.8	76.5	62.8	63.2	76.1	65.4	83.5	86.1	63.7	76.7	78.0	60.4	75.4	84.9	80.0	
1.9	9.0	5.8	7.8	5.6	4.3	5.5	3.2	2.1	16.0	4.0	5.0	8.4	2.7	2.7	3.8	
2.7	32.1	9.7	20.0	24.4	11.4	22.1	7.7	5.4	11.9	10.7	9.3	23.3	13.2	6.5	9.3	
8.5	8.1	8.0	9.4	6.8	8.3	7.0	5.6	6.4	8.3	8.6	7.7	8.0	8.7	6.0	6.9	
50.4	57.6	54.8	54.4	59.3	53.2	54.7	58.1	55.3	53.4	53.2	54.5	62.8	58.3	65.7	61.5	
39.6	32.6	35.1	33.3	32.3	36.8	36.4	34.9	36.5	37.8	36.5	36.4	27.3	31.2	26.7	30.0	
10.0	9.8	10.1	12.3	8.4	10.0	8.9	7.0	8.2	8.8	10.3	9.2	9.9	10.5	7.6	8.5	
33.1	31.8	35.8	34.1	35.5	33.5	31.6	35.2	35.4	35.5	34.6	35.0	34.3	37.0	39.8	37.8	
62.6	62.2	50.1	54.2	22.9	56.4	62.5	61.0	71.4	53.2	54.2	58.5	35.5	23.6	37.8	42.4	
79.4	70.2	87.2	84.5	88.2	80.4	70.8	88.2	90.0	85.1	85.0	86.5	86.8	93.7	94.5	91.5	
9.9	9.0	12.5	11.0	11.8	10.3	8.6	12.2	12.2	12.2	11.9	12.0	11.3	13.8	16.2	14.4	
7.1	6.5	8.7	7.4	7.6	7.2	6.4	9.2	8.5	8.3	8.1	8.4	6.8	7.7	7.9	7.9	
17.7	6.2	16.1	10.4	13.1	14.8	33.3	10.7	3.9	10.1	6.9	7.4	3.1	4.3	4.4	5.1	
10.7	2.6	8.8	5.3	7.7	8.5	16.0	7.2	2.4	5.4	3.4	4.1	1.0	2.2	1.4	2.2	
3.8	3.0	5.5	2.9	3.9	3.9	14.3	1.7	0.3	2.0	1.7	1.5	1.5	1.1	1.4	1.4	
1.9	0.5	0.3	1.0	0.6	1.3	1.2	0.3	0.3	0.2	0.3	0.3	0.1	0.5	0.6	0.4	
1.4	0.1	1.5	1.2	0.9	1.2	1.7	1.5	0.9	2.5	1.5	1.5	0.4	0.6	0.9	1.0	
71.6	81.8	72.0	76.1	76.4	74.0	56.6	80.1	84.9	77.3	81.0	81.1	85.5	83.9	86.7	84.7	
23.9	53.3	47.0	55.0	43.7	35.7	25.6	58.3	76.1	66.0	63.6	65.4	71.4	53.9	63.0	63.6	
15.8	8.5	6.6	5.9	12.9	12.4	17.0	5.1	3.1	3.6	5.7	4.8	9.6	8.1	6.0	6.1	
9.7	12.0	6.2	9.0	8.6	9.4	6.8	6.6	0.4	1.4	1.6	2.2	2.1	7.1	7.9	5.7	
16.1	2.3	6.7	2.9	6.6	10.8	4.1	4.4	0.6	2.3	6.3	4.4	0.9	11.4	5.4	5.3	
6.1	5.6	5.5	3.3	4.5	5.6	3.1	5.6	4.6	4.1	3.9	4.3	1.4	3.4	4.3	4.0	
10.7	12.0	11.9	13.5	10.5	11.2	10.1	9.2	11.2	12.6	12.1	11.5	11.4	11.7	9.0	10.2	
13.2	2.9	9.4	6.1	7.5	10.1	25.0	4.6	2.8	5.2	3.7	3.9	1.7	2.6	2.6	2.9	
4.5	3.3	6.7	4.3	5.6	4.7	8.3	6.1	1.0	5.0	3.2	3.5	1.3	1.8	1.8	2.2	
49.7	64.4	43.2	53.2	50.7	51.3	40.0	51.1	59.6	51.8	55.3	55.0	72.4	65.7	64.6	62.6	
21.9	17.4	28.8	22.9	25.7	22.6	16.6	29.0	25.3	25.5	25.7	26.1	13.1	18.2	22.0	22.2	
14.0	41.5	28.4	25.0	29.3	23.0	45.7	11.0	5.0	4.3	8.0	7.4	29.9	8.8	5.3	8.5	
13.7	42.5	43.9	48.8	40.0	27.9	25.7	63.3	81.2	83.9	71.4	73.7	55.1	51.4	36.0	48.9	
5.1	2.8	11.0	8.8	8.5	6.0	4.3	7.7	4.5	3.0	4.8	5.0	4.6	13.3	36.5	23.2	
59.4	4.2	6.6	5.4	12.2	34.3	16.2	6.7	2.0	1.7	5.6	4.6	3.5	16.7	12.5	10.0	
2.2	2.6	4.8	3.8	3.0	2.8	2.4	4.3	2.3	3.0	4.1	3.6	1.7	3.2	1.9	2.4	
20.4	36.0	31.9	35.0	35.6	27.2	24.2	39.3	39.8	50.0	33.4	37.6	41.3	32.4	17.3	26.2	
15.2	20.2	18.5	19.2	13.7	16.7	15.7	6.7	6.3	3.9	9.0	7.5	28.3	12.4	11.8	12.3	
12.1	7.2	10.4	3.8	8.9	10.0	9.9	7.7	6.3	5.2	9.1	7.8	3.1	10.0	9.7	8.6	
7.0	4.0	5.1	1.9	7.4	5.8	5.8	4.7	5.3	3.0	5.8	5.2	3.0	9.3	11.3	8.7	
4.2	1.3	1.2	1.2	0.0	2.7	1.7	2.7	1.5	1.7	7.0	4.6	1.4	2.7	2.2	2.8	
35.5	24.9	27.5	30.8	27.4	31.5	37.0	32.0	35.8	32.2	29.6	31.6	17.7	26.8	39.9	34.5	
5.7	6.4	5.4	8.1	7.0	6.1	5.6	7.0	5.0	3.9	6.0	5.7	5.2	6.5	7.8	6.9	
7.3	6.2	8.7	5.8	6.7	7.1	6.2	10.3	9.5	10.9	8.3	9.2	5.5	5.1	5.1	6.2	
19.7	16.4	19.4	10.8	12.6	17.6	15.7	15.3	15.3	13.5	13.7	14.3	13.0	13.2	12.5	13.0	
13.5	10.9	15.2	11.9	11.5	12.9	12.5	18.0	17.3	15.7	15.3	16.2	15.5	16.0	13.7	14.7	
6.8	3.0	5.7	1.9	6.3	5.5	5.4	6.0	7.3	5.7	6.9	6.7	6.2	7.0	7.3	7.0	
14.7	22.8	12.5	25.0	18.5	17.2	14.0	15.0	12.8	13.9	13.1	13.4	15.9	14.0	16.7	15.6	
3.4	2.6	1.8	4.2	1.9	3.0	3.4	3.3	3.3	3.0	4.6	3.9	5.8	5.8	5.8	5.3	
7.5	5.7	5.7	7.7	4.1	6.7	6.8	2.7	6.8	7.0	8.2	6.9	11.3	9.3	8.9	8.6	
5.2	2.5	3.9	4.6	1.9	4.2	5.0	4.7	4.3	4.8	3.9	4.2	6.6	3.2	5.7	5.2	
11.3	8.7	11.0	7.7	9.6	10.3	11.4	6.7	11.5	11.3	9.2	9.6	7.3	7.6	9.2	9.0	
1.9	17.5	9.0	13.1	15.6	7.8	13.0	7.0	5.0	6.5	8.1	7.1	10.0	10.7	5.7	6.9	
8.5	3.6	7.2	7.3	11.5	7.6	6.6	11.0	7.0	7.8	8.4	8.5	3.0	8.1	9.4	8.4	

3/ Statistics are not presented for this group because too few records contained the specific data.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 2 (Continued) 1/

Doctorates: Men

		1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos. and Marine Sc.	Physical Sciences	Mathematics	Computer Sciences	Engineering	EMP Fields	Biochemistry	Other Biosciences	Biosciences	Health Sciences	Agricultural Sciences	Life Sciences
Total Male		20908	1116	1568	513	3197	615	385	3474	7671	374	2100	2474	329	919	3722
Male as a Percent of Total Doctorates	%	64.8	90.3	79.4	81.8	83.3	83.1	85.6	93.5	87.7	65.4	64.6	64.7	40.8	82.6	64.8
U.S. Citizenship	%	64.6	56.7	68.9	66.5	64.3	45.5	50.1	40.5	51.3	75.7	77.1	76.9	62.3	56.6	70.6
Non-U.S., Permanent Visa		5.3	4.5	3.8	3.5	4.0	6.3	7.3	9.4	6.8	2.7	4.0	3.8	7.3	5.0	4.4
Non-U.S., Temporary Visa		22.5	32.3	21.7	21.6	25.4	42.1	35.6	42.5	35.0	15.8	13.0	13.4	18.5	31.3	18.3
Unknown		7.5	6.5	5.5	8.4	6.3	6.0	7.0	7.5	6.9	5.9	6.0	6.0	11.9	7.1	6.8
Married	%	59.9	47.5	52.0	58.5	51.5	48.9	56.4	58.9	54.9	52.4	57.2	56.5	62.6	68.0	59.9
Not Married		30.8	44.8	41.9	31.6	41.3	41.1	34.3	30.7	36.1	40.4	35.1	35.9	24.6	22.7	31.7
Unknown		9.2	7.7	6.1	9.9	7.3	9.9	9.4	10.4	9.0	7.2	7.6	7.6	12.8	9.2	8.4
Median Age at Doct.	Yrs	32.8	30.0	29.2	32.1	29.9	30.7	31.7	31.1	30.5	29.5	31.2	30.9	34.1	33.0	31.6
Percent with Bacc in Same Field as Doctorate		56.9	73.7	79.8	49.3	72.8	73.0	20.3	76.4	71.8	26.2	60.2	55.1	35.3	61.4	54.9
Percent with Masters		76.7	65.3	37.3	75.6	53.2	73.2	80.3	86.0	71.0	31.0	54.3	50.8	69.3	90.5	62.2
Median Time Lapse From Bacc to Doct																
Total Time	Yrs	9.7	7.3	6.6	9.2	7.2	7.7	9.0	8.1	7.7	7.1	8.3	8.1	10.2	9.6	8.5
Registered Time		6.6	6.2	5.5	6.8	6.0	6.2	6.6	5.8	5.9	6.0	6.6	6.5	6.7	6.2	6.4
Postdoctoral Study Plans	%	24.9	58.1	51.0	36.3	51.1	25.4	10.6	19.2	32.6	77.8	65.7	67.5	20.4	22.2	52.2
Fellowship		11.2	19.0	22.7	14.4	20.1	8.9	1.6	5.1	11.5	50.3	37.0	39.0	10.6	7.6	28.7
[illegible]		13.3	38.0	27.2	20.5	29.9	14.0	6.5	12.3	19.5	21.7	20.0	20.2	7.3	13.4	17.4
Traineeship		0.9	0.8	0.4	0.6	0.6	2.0	1.3	1.2	1.0	1.1	2.2	2.1	0.6	0.8	1.6
Other		1.4	0.3	0.7	0.8	0.6	0.5	1.3	0.5	0.6	4.8	6.5	6.3	1.8	0.4	4.4
Planned Employment After Doctorate	%	64.4	32.4	41.5	52.8	40.1	63.1	79.5	68.4	56.8	14.2	26.8	24.9	66.6	67.0	39.0
Educ Institution 2/		36.3	10.1	7.2	24.2	10.9	46.5	49.6	25.6	22.4	3.7	12.5	11.2	34.0	34.2	18.9
Industry/Business		14.9	15.3	30.2	13.6	22.3	10.2	23.9	32.2	25.9	8.8	6.2	6.6	14.6	14.9	9.3
Government		6.9	4.6	2.7	12.3	4.9	2.6	2.9	7.5	5.8	0.5	5.3	4.6	11.6	13.2	7.3
Nonprofit		3.7	0.8	0.7	0.8	0.8	1.0	1.0	0.9	0.9	0.8	1.4	1.3	4.9	1.7	1.7
Other & Unknown		2.6	1.6	0.6	1.9	1.2	2.8	2.1	2.2	1.8	0.3	1.5	1.3	1.5	3.0	1.7
Postdoc Status Unknown	%	10.7	9.5	7.5	10.9	8.8	11.5	9.9	12.4	10.7	8.0	7.5	7.6	13.1	10.8	8.8
Definite Postdoct Study	%	18.5	46.1	41.4	25.1	40.4	17.1	7.3	11.5	23.8	67.9	53.3	55.5	15.8	14.4	41.8
Seeking Postdoct Study		6.4	12.0	9.6	11.1	10.7	8.3	3.4	7.7	8.8	9.9	12.4	12.0	4.6	7.8	10.3
Definite Employment		47.3	22.6	33.2	40.2	30.6	44.9	59.0	47.7	40.9	9.6	18.6	17.3	52.3	48.4	28.0
Seeking Employment		17.1	9.9	8.3	12.7	9.5	18.2	20.5	20.7	15.8	4.5	8.2	7.6	14.3	18.6	10.9
Employment Activity After Doctorate																
Primary Activity																
R & D	%	34.6	68.7	75.8	59.2	70.4	40.6	60.4	64.3	63.8	63.9	54.2	55.0	52.3	58.2	55.9
Teaching		33.8	18.3	12.5	18.9	15.3	48.9	30.0	21.5	22.6	16.7	22.5	22.0	24.4	18.0	20.7
Administration		11.7	1.6	2.1	3.4	2.2	1.4	0.9	1.9	1.9	2.8	5.4	5.2	7.6	4.5	5.3
Prof. Services		11.1	4.4	3.3	7.8	4.5	2.5	4.0	5.4	4.8	8.3	10.0	9.8	11.6	5.6	8.3
Other		2.3	1.6	1.2	5.3	2.1	1.1	0.4	1.5	1.6	2.8	3.6	3.5	1.2	4.3	3.4
Secondary Activity																
R & D		23.6	17.5	11.5	22.3	15.3	38.8	26.0	19.6	20.4	16.7	20.7	20.4	22.1	21.8	21.3
Teaching		15.0	8.3	4.0	18.9	8.3	22.8	34.8	15.7	15.4	5.6	15.6	14.8	19.2	18.0	16.9
Administration		9.5	9.5	18.1	7.3	13.6	1.8	4.8	8.6	9.3	13.9	13.8	13.8	14.0	11.2	12.7
Prof. Services		6.8	5.2	5.6	7.3	5.8	2.9	3.1	5.5	5.2	0.0	7.7	7.0	9.3	6.1	7.0
Other		2.0	0.8	1.2	1.0	1.0	0.7	0.4	0.8	0.9	0.0	2.6	2.3	0.6	1.8	1.8
No Secondary Activity		36.6	53.2	54.4	37.9	50.6	27.5	26.4	44.3	43.5	58.3	35.3	37.2	32.0	31.7	34.0
Activity Unknown		6.5	5.6	5.2	5.3	5.3	5.4	4.4	5.4	5.3	5.6	4.3	4.4	2.9	9.4	6.3
Region of Employment After Doctorate																
New England	%	5.8	8.7	7.3	3.9	7.0	6.2	6.2	6.6	6.7	5.6	4.3	4.4	4.7	1.3	3.2
Middle Atlantic		14.2	16.3	24.6	4.4	18.2	12.0	19.4	15.4	16.2	25.0	10.2	11.5	11.0	4.9	8.6
East No Central		13.1	6.7	19.0	7.8	13.5	12.7	17.6	11.0	12.4	13.9	10.7	11.0	15.1	9.4	11.0
West No Central		6.0	2.4	4.6	5.3	4.2	7.6	3.1	3.4	4.0	11.1	6.1	6.6	8.7	11.9	9.2
South Atlantic		14.2	11.5	11.5	15.5	12.4	13.8	11.0	10.8	11.6	13.9	16.4	16.2	19.8	8.3	13.4
East So Central		4.2	2.8	3.8	4.4	3.7	5.1	3.1	3.4	3.6	0.0	3.8	3.5	2.3	4.5	3.7
West So Central		7.3	4.4	5.6	12.6	6.7	4.3	5.3	6.2	6.1	2.8	7.9	7.5	10.5	5.8	7.3
Mountain		5.3	7.5	2.3	10.7	5.4	2.9	6.2	6.2	5.6	0.0	5.1	4.7	1.7	6.3	4.9
Pacific & Insular		10.2	19.8	7.3	15.0	12.2	11.2	15.0	13.0	12.7	13.9	12.5	12.6	6.4	7.6	9.5
Foreign		13.1	14.3	7.1	16.0	10.8	17.8	8.4	17.7	14.9	11.1	16.6	16.2	14.5	34.8	23.9
Region Unknown		6.6	5.6	6.7	4.4	5.9	6.5	4.8	6.4	6.1	2.8	6.1	5.9	5.2	4.9	5.4

1/ Refer to explanatory note on pages 44-45 and the description of doctoral fields inside back cover.
2/ Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.

Doctorates: Men

Psychology	Economics	Anthropology and Sociology	Political Sci. & Internat'l Rel.	Other Social Sciences	Social Sciences Inc. Psychology	Total Sciences	History	Eng. and Amer. Lang. and Lit.	Foreign Lang. and Lit.	Other Humanities	Humanities	Business and Management	Other Professional Fields	Education	Total Non-Sciences	Other or Unspecified 3/
1446	683	426	363	351	3269	14662	385	294	182	1069	1930	751	633	2897	6211	35
46.7	83.0	55.0	74.2	65.9	57.2	72.6	65.6	43.9	41.0	59.3	55.1	76.6	58.4	44.9	51.7	57.4
85.6	48.0	69.2	57.0	57.0	69.4	60.2	81.0	82.7	58.8	75.5	76.1	53.7	70.0	81.1	75.1	
1.2	9.5	6.6	8.0	5.1	4.8	5.7	4.2	2.0	14.3	3.6	4.5	9.6	2.2	3.2	4.3	
3.3	33.7	14.1	24.8	30.8	16.4	26.6	9.1	7.8	14.3	11.9	10.9	27.8	17.2	9.3	12.8	
10.0	8.8	10.1	10.2	7.1	9.5	7.4	5.7	7.5	12.6	9.1	8.5	8.9	10.6	6.4	7.8	
54.1	58.1	60.8	56.5	63.8	57.1	56.6	61.3	60.5	53.3	56.9	58.0	64.6	64.5	75.8	67.8	
34.7	31.5	27.9	32.0	27.9	32.1	34.1	31.4	31.0	34.6	32.6	32.3	24.2	23.4	16.6	23.1	
11.2	10.4	11.3	11.6	8.3	10.8	9.2	7.3	8.5	12.1	10.5	9.7	11.2	12.2	7.6	9.1	
33.0	32.1	35.2	34.4	35.6	33.4	31.4	35.3	34.8	35.3	34.5	34.8	34.3	36.6	39.4	37.1	
64.9	62.4	50.9	53.7	24.8	57.0	64.2	63.4	71.1	47.3	54.9	58.3	36.0	22.1	32.8	40.0	
79.0	70.1	86.6	85.1	90.0	80.0	70.8	88.8	88.1	81.3	83.5	85.1	86.7	92.7	94.5	90.4	
9.9	9.1	11.8	11.1	11.6	10.3	8.4	12.3	11.4	11.5	11.5	11.7	11.3	13.3	15.7	13.7	
7.1	6.4	8.2	7.3	7.7	7.2	6.3	9.1	8.1	7.7	7.9	8.1	6.8	8.0	8.0	7.9	
16.9	6.4	15.5	10.5	12.5	13.4	33.3	12.5	4.1	11.0	5.6	7.3	3.7	4.1	4.3	5.1	
10.4	2.6	9.2	5.5	7.7	7.8	15.0	8.8	1.7	7.1	3.0	4.4	1.3	1.9	1.3	2.3	
3.7	3.2	5.2	3.0	3.7	3.7	15.4	2.1	0.3	2.2	1.2	1.3	1.9	0.8	1.7	1.5	
1.6	0.6	0.2	0.8	0.3	1.0	1.2	0.3	0.7	0.5	0.4	0.4	0.1	0.8	0.5	0.5	
1.2	0.0	0.9	1.1	0.9	0.9	1.6	1.3	1.4	1.1	1.0	1.1	0.4	0.6	0.8	0.8	
71.2	80.5	71.1	74.9	76.9	74.2	56.1	78.4	84.0	73.6	81.9	80.7	84.0	82.5	86.5	84.0	
23.9	52.3	50.2	53.4	47.0	39.0	25.2	54.3	75.2	62.1	64.8	64.0	69.1	49.8	62.7	62.6	
16.9	8.9	5.2	6.1	12.5	12.0	18.6	4.9	3.4	5.5	5.7	5.2	9.7	7.1	5.9	6.3	
11.1	11.7	7.5	9.6	9.1	10.4	7.2	8.6	0.3	1.6	1.2	2.6	2.8	7.9	9.4	6.3	
15.2	2.5	4.0	2.2	4.8	8.5	2.8	5.5	0.7	2.2	6.7	5.1	0.7	14.2	5.5	5.7	
4.1	5.1	4.2	3.6	3.4	4.2	2.3	5.2	4.4	2.2	3.4	3.8	1.7	3.5	3.1	3.2	
11.9	13.0	13.4	14.6	10.5	12.5	10.6	9.1	11.9	15.4	12.5	12.0	12.3	13.4	9.1	10.9	
12.4	3.2	10.6	6.1	8.0	9.1	25.1	5.2	2.7	5.5	3.3	3.8	2.1	2.7	2.6	2.9	
4.6	3.2	4.9	4.4	4.6	4.3	8.2	7.3	1.4	5.5	2.3	3.5	1.6	1.4	1.8	2.2	
51.0	63.5	43.7	51.2	53.6	53.0	40.3	48.6	57.1	54.4	56.5	54.8	70.6	65.4	67.4	63.7	
20.1	17.0	27.5	23.7	23.4	21.2	15.8	29.9	26.9	19.2	25.4	25.9	13.4	17.1	19.1	20.3	
15.0	42.6	28.0	24.2	31.4	26.1	51.4	10.7	6.0	6.1	8.1	8.0	29.6	8.7	5.2	9.6	
14.5	40.8	45.7	45.7	41.5	30.7	24.6	60.4	82.7	78.8	71.0	71.7	53.0	48.6	32.4	47.4	
5.1	2.8	14.0	10.2	6.9	6.2	3.8	10.2	2.4	4.0	4.5	5.1	5.5	12.6	40.7	23.5	
56.2	4.4	4.3	4.8	10.1	27.1	12.0	7.5	2.4	4.0	6.5	5.8	4.0	17.9	12.2	10.0	
2.3	2.8	2.2	5.4	3.2	2.8	2.3	4.8	1.8	3.0	3.8	3.6	1.9	4.3	1.3	2.3	
19.4	34.3	36.0	31.7	36.7	28.1	22.8	35.8	42.3	44.4	29.1	33.8	39.6	26.6	15.5	24.8	
15.3	21.9	21.0	18.3	14.9	17.8	16.4	6.4	5.4	7.1	9.9	8.3	28.1	11.6	11.6	12.9	
12.3	6.9	9.7	3.8	5.9	9.1	9.8	9.1	7.1	4.0	9.8	8.7	2.6	11.6	10.3	9.0	
7.7	4.4	2.2	2.7	8.0	5.8	5.7	5.9	5.4	4.0	6.0	5.7	3.2	8.9	11.3	8.4	
3.9	1.6	1.6	1.1	0.0	2.4	1.5	2.7	1.8	2.0	7.5	5.2	1.5	1.9	2.1	2.8	
34.6	24.2	23.7	32.8	27.7	29.8	37.8	33.7	33.3	34.3	31.6	32.5	18.9	31.4	41.0	34.8	
6.8	6.7	5.9	9.7	6.9	7.0	6.0	6.4	4.8	4.0	6.1	5.8	6.0	8.0	8.2	7.3	
7.5	6.0	9.7	4.3	4.8	6.7	6.1	9.1	9.5	11.1	7.0	8.1	4.7	4.8	4.6	5.6	
18.6	16.1	18.8	10.8	15.4	16.8	15.1	15.5	11.3	9.1	13.2	12.9	13.2	12.6	12.7	12.8	
14.0	11.5	17.2	10.8	11.2	13.0	12.3	14.4	15.5	17.2	15.6	15.5	14.2	14.3	13.5	14.2	
6.8	3.5	7.0	2.2	5.9	5.4	5.3	6.4	7.7	7.1	6.0	6.4	6.8	7.7	7.5	7.2	
15.9	21.4	8.1	25.3	17.0	17.6	13.6	16.6	13.7	11.1	13.2	13.7	15.8	12.8	16.0	15.0	
3.4	2.3	1.6	4.3	1.1	2.8	3.4	4.3	4.2	1.0	5.6	4.7	5.7	6.5	5.6	5.5	
7.7	6.0	6.5	6.5	4.3	6.6	6.5	3.2	5.4	9.1	9.9	7.9	10.9	9.7	7.7	8.4	
6.0	2.3	2.7	5.4	1.6	4.2	5.1	6.4	6.5	5.1	3.8	4.8	7.2	2.9	6.5	5.7	
10.7	6.9	10.2	7.5	7.4	9.0	11.1	7.0	11.3	7.1	8.3	8.4	7.2	8.2	9.5	8.8	
2.8	20.3	11.8	15.6	19.7	11.4	15.5	8.6	8.9	13.1	9.4	9.5	11.9	13.3	8.2	9.6	
6.8	3.7	6.5	7.5	11.7	6.6	6.1	8.6	6.0	9.1	7.9	7.8	2.5	7.2	8.2	7.2	

3/ Statistics are not presented for this group because too few records contained the specific data.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 2 (Continued) 1/

Doctorates: Women

		1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos. and Marine Sci.	Physical Sciences	Mathematics	Computer Sciences	Engineering	EHP Fields	Biochemistry	Other Biosciences	Biosciences	Health Sciences	Agricultural Sciences	Life Sciences
Total Female		11370	120	406	114	640	125	65	242	1072	198	1152	1350	477	193	2020
Female as a Percent of Total Doctorates		35.2	9.7	20.6	18.2	16.7	16.9	14.4	6.5	12.3	34.6	35.4	35.3	59.2	17.4	35.2
U.S. Citizenship	%	82.2	54.2	72.7	72.8	69.2	52.0	76.9	61.6	66.0	74.2	80.0	79.2	82.0	67.9	78.8
Non-U.S., Permanent Visa		4.0	5.0	7.6	6.1	6.9	9.6	6.2	10.3	7.9	4.5	4.9	4.9	3.4	6.2	4.7
Non-U.S., Temporary Visa		7.8	30.0	14.5	11.4	16.9	33.6	7.7	22.3	19.5	18.2	10.6	11.7	7.3	22.8	11.7
Unknown		6.0	10.8	5.2	9.6	7.0	4.8	9.2	5.8	6.6	3.0	4.4	4.2	7.3	3.1	4.9
Married	%	52.3	43.3	51.0	44.7	48.4	61.6	47.7	51.7	50.7	42.4	50.0	48.9	53.2	59.1	50.9
Not Married		39.8	42.5	42.6	43.9	42.8	33.6	41.5	41.3	41.3	51.0	43.5	44.6	37.7	36.3	42.2
Unknown		8.0	14.2	6.4	11.4	8.8	4.8	10.8	7.0	8.0	6.6	6.5	6.5	9.0	4.7	6.9
Median Age at Doct.	Yrs	35.4	30.3	28.6	30.7	29.4	31.3	31.9	29.7	29.7	29.6	30.8	30.6	37.4	31.5	31.9
Percent with Bacc in Same Field as Doctorate		51.3	66.7	80.5	44.7	71.6	72.8	20.0	58.7	65.7	19.7	61.5	55.3	65.2	48.7	57.0
Percent with Masters		82.0	70.0	37.2	71.1	49.4	84.0	89.2	78.9	62.5	34.3	52.5	49.9	90.4	88.6	63.1
Median Time Lapse From Bacc to Doct																
Total Time	Yrs	12.2	7.7	6.2	8.5	6.9	9.4	9.3	7.2	7.3	7.1	8.4	8.2	13.5	8.9	9.2
Registered Time		7.3	6.6	5.3	6.8	5.8	6.7	6.4	5.7	5.9	6.3	6.5	6.5	7.1	6.4	6.6
Postdoctoral Study Plans	%	18.8	48.3	47.8	37.7	46.1	14.4	12.3	22.7	35.1	84.3	66.8	69.3	13.8	29.0	52.4
Fellowship		10.1	17.5	21.2	21.9	20.6	4.0	1.5	10.3	15.2	53.5	41.1	43.0	7.8	6.7	31.2
Research Assoc		6.3	29.2	25.6	14.9	24.4	7.2	9.2	10.7	18.4	27.8	19.5	20.7	3.6	21.2	16.7
Traineeship		0.9	0.0	0.5	0.0	0.3	3.2	1.5	1.2	0.9	0.5	1.9	1.7	0.8	1.0	1.4
Other		1.5	1.7	0.5	0.9	0.8	0.0	0.0	0.4	0.6	2.5	4.2	3.9	1.7	0.0	3.0
Planned Employment After Doctorate	%	72.0	35.8	44.1	49.1	43.4	76.8	75.4	64.9	54.1	11.1	26.7	24.4	77.1	64.8	40.7
Educ Institution 2/		46.1	10.8	10.1	24.6	12.8	57.6	47.7	17.8	21.3	4.5	14.4	13.0	49.3	36.8	23.8
Industry/Business		9.3	13.3	28.6	11.4	22.7	12.0	21.5	36.8	24.5	4.0	5.0	4.9	8.4	14.5	6.6
Government		5.5	6.7	1.2	11.4	4.1	1.6	0.0	5.0	3.7	0.0	3.0	2.5	7.1	8.8	4.2
Nonprofit		6.1	2.5	0.7	0.9	1.1	1.6	1.5	1.7	1.3	1.0	1.6	1.6	8.0	0.5	3.0
Other & Unknown		5.0	2.5	3.4	0.9	2.8	4.0	4.6	3.7	3.3	1.5	2.7	2.5	4.4	4.1	3.1
Postdoc Status Unknown	%	9.1	15.8	8.1	13.2	10.5	8.8	12.3	12.4	10.8	4.5	6.5	6.2	9.0	6.2	6.9
Definite Postdoct Study	%	13.6	35.8	37.9	29.8	36.1	11.2	7.7	13.2	26.3	68.7	51.5	54.0	9.9	18.1	40.1
Seeking Postdoct Study		5.3	12.5	9.9	7.9	10.0	3.2	4.6	9.5	8.8	15.7	15.3	15.3	4.0	10.9	12.2
Definite Employment		50.6	25.8	30.0	42.1	31.4	52.8	58.5	40.9	37.7	6.1	16.1	14.7	58.5	46.6	28.1
Seeking Employment		21.5	10.0	14.0	7.0	12.0	24.0	16.9	24.0	16.4	5.1	10.6	9.8	18.7	18.1	12.7
Employment Activity After Doctorate Primary Activity																
R & D	%	16.0	58.1	65.6	52.1	61.2	31.8	39.5	73.7	57.4	50.0	41.9	42.4	23.3	61.1	36.0
Teaching		42.4	12.9	25.4	29.2	24.4	57.6	44.7	16.2	29.7	41.7	33.3	33.8	47.0	21.1	38.3
Administration		16.4	3.2	4.1	2.1	3.5	1.5	2.6	1.0	2.5	0.0	3.2	3.0	12.9	4.4	8.1
Prof. Services		16.8	9.7	1.6	12.5	5.5	4.5	5.3	5.1	5.2	0.0	10.8	10.1	10.0	1.1	8.6
Other		2.7	6.5	1.6	0.0	2.0	3.0	5.3	1.0	2.2	8.3	3.8	4.0	2.9	5.6	3.7
Secondary Activity																
R & D		27.9	9.7	23.0	31.3	22.9	42.4	28.9	17.2	25.2	33.3	29.6	29.8	43.0	17.8	34.4
Teaching		12.4	12.9	1.6	12.5	6.0	21.2	15.8	14.1	11.4	0.0	14.0	13.1	10.4	22.2	13.2
Administration		9.0	6.5	9.0	6.3	8.0	3.0	5.3	6.1	6.4	0.0	13.4	12.6	8.6	10.0	10.2
Prof. Services		8.0	3.2	8.2	8.3	7.5	4.5	7.9	7.1	6.9	0.0	4.3	4.0	6.8	7.8	6.0
Other		2.6	0.0	2.5	0.0	1.5	1.5	0.0	1.0	1.2	0.0	2.2	2.0	1.1	2.2	1.6
No Secondary Activity		34.4	58.1	54.1	37.5	50.7	25.8	39.5	51.5	45.8	66.7	29.6	31.8	26.2	33.3	29.3
Activity Unknown		5.8	9.7	1.6	4.2	3.5	1.5	2.6	3.0	3.0	0.0	7.0	6.6	3.9	6.7	5.3
Region of Employment After Doctorate																
New England	%	6.8	9.7	13.1	2.1	10.0	1.5	5.3	6.1	7.2	8.3	5.9	6.1	2.5	6.7	4.4
Middle Atlantic		14.8	25.8	20.5	16.7	20.4	13.6	34.2	17.2	19.8	16.7	13.4	13.6	12.2	8.9	12.2
East No Central		14.5	0.0	19.7	10.4	14.4	7.6	15.8	7.1	11.6	25.0	16.1	16.7	15.4	8.9	14.8
West No Central		6.4	0.0	7.4	4.2	5.5	12.1	5.3	1.0	5.7	0.0	6.5	6.1	2.9	15.6	6.0
South Atlantic		15.7	16.1	12.3	12.5	12.9	9.1	10.5	21.2	13.9	16.7	9.1	9.6	15.8	7.8	12.3
East So Central		4.5	0.0	0.8	4.2	1.5	1.5	5.3	3.0	2.2	0.0	1.1	1.0	6.8	4.4	4.4
West So Central		8.4	0.0	4.9	12.5	6.0	12.1	7.9	6.1	7.2	0.0	8.6	8.1	12.2	4.4	9.5
Mountain		4.7	12.9	1.6	10.4	5.5	9.1	7.9	4.0	5.9	8.3	5.4	5.6	6.5	3.3	5.6
Pacific & Insular		10.3	12.9	9.8	20.8	12.9	10.6	7.9	18.2	13.4	25.0	10.8	11.6	11.1	10.0	11.1
Foreign		4.9	19.4	3.3	4.2	6.0	16.7	0.0	9.1	7.9	0.0	15.6	14.6	7.9	25.6	13.1
Region Unknown		9.0	3.2	6.6	2.1	5.0	6.1	0.0	7.1	5.2	0.0	7.5	7.1	6.8	4.4	6.5

1/ Refer to explanatory note on pages 44-45 and the description of doctoral fields inside back cover.
2/ Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.

Doctorates: Women

Psychology	Economics	Anthropology and Sociology	Political Sci. & Internat'l Rel.	Other Social Sciences	Social Sciences Inc. Psychology	Total Sciences	History	Eng. and Amer. Lang. and Lit.	Foreign Lang. and Lit.	Other Humanities	Humanities	Business and Management	Other Professional Fields	Education	Total Non-Sciences	Other or Unspecified 3/
1652	140	349	126	182	2449	5541	202	375	262	735	1574	229	450	3550	5803	26
53.3	17.0	45.0	25.8	34.1	42.8	27.4	34.4	56.1	59.0	40.7	44.9	23.4	41.6	55.1	48.3	42.6
88.2	64.3	85.4	79.4	75.3	85.0	79.0	88.1	88.8	67.2	78.4	80.2	82.5	83.1	88.0	85.3	
2.5	6.4	4.9	7.1	6.6	3.6	4.8	1.5	2.1	17.2	4.6	5.7	4.4	3.3	2.2	3.3	
2.2	24.3	4.3	6.3	12.1	4.7	10.1	5.0	3.5	10.3	9.0	7.4	8.3	7.6	4.2	5.5	
7.1	5.0	5.4	7.1	6.0	6.7	6.0	5.4	5.6	5.3	8.0	6.7	4.8	6.0	5.6	5.9	
47.2	55.0	47.6	48.4	50.5	48.0	49.6	52.0	51.2	53.4	47.9	50.1	56.8	49.6	57.5	54.9	
43.9	37.9	43.8	37.3	40.7	43.0	42.4	41.6	40.8	40.1	42.0	41.4	37.6	42.2	34.9	37.3	
9.0	7.1	8.6	14.3	8.8	9.1	8.1	6.4	8.0	6.5	10.1	8.5	5.7	8.2	7.6	7.8	
33.2	30.8	36.6	33.1	35.4	33.6	32.1	34.9	36.2	35.6	35.0	35.4	34.3	37.8	40.3	38.7	
60.5	61.4	49.0	55.6	19.2	55.6	58.1	56.4	71.7	57.3	53.1	58.6	34.1	25.8	42.0	44.9	
79.8	70.7	88.0	82.5	84.6	80.9	70.9	87.1	91.5	87.8	87.2	88.3	87.3	95.1	94.5	92.6	
9.9	8.4	13.4	10.7	12.7	10.4	9.3	12.1	12.9	12.5	12.4	12.5	11.6	14.5	16.6	15.2	
7.0	6.8	9.5	7.5	7.4	7.3	6.8	9.2	8.8	8.7	8.4	8.6	7.0	7.2	7.9	8.0	
18.4	5.0	16.9	10.3	14.3	16.7	33.3	7.4	3.7	9.5	8.7	7.5	0.9	4.7	4.4	5.1	
10.8	2.1	8.3	4.8	7.7	9.4	18.5	4.0	2.9	4.2	3.9	3.7	0.0	2.7	1.5	2.2	
3.9	2.1	6.0	2.4	4.4	4.1	11.5	1.0	0.3	1.9	2.4	1.7	0.4	1.6	1.2	1.3	
2.1	0.0	0.3	1.6	1.1	1.6	1.4	0.5	0.0	0.0	0.1	0.1	0.0	0.0	0.7	0.4	
1.5	0.7	2.3	1.6	1.1	1.6	1.9	2.0	0.5	3.4	2.2	2.0	0.4	0.4	1.0	1.2	
72.0	87.9	73.1	79.4	75.3	73.7	57.9	83.2	85.6	79.8	79.7	81.6	90.4	86.0	86.8	85.5	
23.8	58.6	43.0	59.5	37.4	31.4	26.7	65.8	76.8	68.7	61.8	67.0	79.0	59.8	63.3	64.7	
14.8	6.4	8.3	5.6	13.7	12.8	12.8	5.4	2.9	2.3	5.6	4.4	9.2	9.6	6.1	6.0	
8.6	13.6	4.6	7.1	7.7	8.2	5.9	3.0	0.5	1.1	2.2	1.7	0.0	6.0	6.8	5.1	
16.9	1.4	10.0	4.8	9.9	13.9	7.5	2.5	0.5	2.3	5.6	3.4	1.7	7.3	5.4	4.8	
7.9	7.9	7.2	2.4	6.6	7.4	5.0	6.4	4.8	5.3	4.6	5.0	0.4	3.3	5.3	4.9	
9.6	7.1	10.0	10.3	10.4	9.6	8.8	9.4	10.7	10.7	11.6	10.9	8.7	9.3	8.8	9.4	
13.9	1.4	8.0	6.3	6.6	11.4	24.8	3.5	2.9	5.0	4.4	4.0	0.4	2.4	2.6	2.9	
4.5	3.6	8.9	4.0	7.7	5.3	8.5	4.0	0.8	4.6	4.4	3.5	0.4	2.2	1.7	2.2	
48.5	68.6	42.7	58.7	45.1	49.1	39.2	55.9	61.6	50.0	53.5	55.1	78.6	66.2	62.4	61.3	
23.5	19.3	30.4	20.6	30.2	24.6	18.7	27.2	24.0	29.8	26.3	26.4	11.8	19.8	24.4	24.1	
13.0	36.5	28.9	27.0	24.4	18.5	30.3	11.5	4.3	3.1	7.9	6.7	30.6	9.1	5.3	7.2	
13.0	50.0	41.6	56.8	36.6	23.8	28.7	68.1	80.1	87.8	72.0	76.0	61.1	55.4	39.3	50.7	
5.0	3.1	7.4	5.4	12.2	5.7	5.7	3.5	6.1	2.3	5.3	4.8	2.2	14.4	32.7	22.8	
62.3	3.1	9.4	6.8	17.1	44.5	27.8	5.3	1.7	0.0	4.3	3.1	2.2	15.1	12.8	10.1	
2.1	2.1	8.1	0.0	2.4	2.7	2.9	3.5	2.6	3.1	4.6	3.7	1.1	1.7	2.4	2.6	
21.3	43.8	26.8	43.2	32.9	26.0	28.0	45.1	38.1	54.2	39.9	42.3	46.1	40.6	18.8	27.8	
15.1	12.5	15.4	21.6	11.0	15.1	13.9	7.1	6.9	1.5	7.6	6.5	28.9	13.4	11.9	11.5	
11.9	8.3	11.4	4.1	15.9	11.3	10.1	5.3	5.6	6.1	8.1	6.8	4.4	7.7	9.3	8.3	
6.2	2.1	8.7	0.0	6.1	5.8	6.1	2.7	5.2	2.3	5.6	4.6	2.2	9.7	11.2	9.0	
4.5	0.0	0.7	1.4	0.0	3.2	2.4	2.7	1.3	1.5	6.4	3.8	1.1	3.7	2.3	2.8	
36.3	28.1	32.2	25.7	26.8	33.9	34.9	29.2	37.7	30.5	26.5	30.4	14.4	20.5	39.0	34.1	
4.6	5.2	4.7	4.1	7.3	4.8	4.6	8.0	5.2	3.8	5.9	5.6	2.8	4.4	7.5	6.5	
7.1	7.5	7.4	9.5	11.0	7.6	6.7	12.4	9.5	10.7	10.4	10.5	7.8	5.4	5.6	6.9	
20.7	17.7	20.1	10.8	6.1	18.8	17.3	15.0	18.2	16.8	14.5	15.9	12.2	14.1	12.2	13.3	
13.1	8.3	12.8	14.9	12.2	12.7	13.1	23.9	18.6	14.5	15.0	17.1	19.4	18.5	13.9	15.3	
6.9	1.0	4.0	1.4	7.3	5.7	5.8	5.3	6.9	4.6	8.4	7.0	4.4	6.0	7.0	6.8	
13.7	29.2	18.1	24.3	22.0	16.7	15.0	12.4	12.1	16.0	13.0	13.1	16.1	15.8	17.4	16.2	
3.5	4.2	2.0	4.1	3.7	3.4	3.5	1.8	2.6	4.6	3.1	3.0	6.1	4.7	6.0	5.2	
7.4	4.2	4.7	10.8	3.7	6.7	7.5	1.8	7.8	5.3	5.6	5.6	12.2	8.7	9.9	8.9	
4.5	3.1	5.4	2.7	2.4	4.2	4.9	1.8	2.6	4.6	4.1	3.5	5.0	3.7	5.0	4.5	
11.9	16.7	12.1	8.1	14.6	12.2	12.1	6.2	11.7	14.5	10.7	10.9	7.8	6.7	9.0	9.2	
1.1	5.2	5.4	6.8	6.1	2.7	6.4	4.4	2.2	1.5	6.1	4.1	4.4	7.0	3.4	4.0	
10.1	3.1	8.1	6.8	11.0	9.2	7.7	15.0	7.8	6.9	9.2	9.2	4.4	9.4	10.5	9.8	

3/ Statistics are not presented for this group because too few records contained the specific data.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 3 Sources of Support in Graduate School of Doctorate Recipients, by Sex and Summary Field, 1987

Sources of Support in Graduate School		Total		Field of Doctorate: Physical[1] Sciences		Engineering		Life Sciences		Social Sciences		Humanities		Prof. Fields		Education	
		Men/Women		Men/Women		Men/Women		Men/Women		Men/Women		Men/Women		Men/Women		Men/Women	
NSF Research Assistant	N	1183	238	603	91	333	19	144	74	75	39	7	3	12	3	8	7
	V%[2]	6.3	2.3	15.7	12.0	10.6	8.7	4.2	3.9	2.6	1.7	0.4	0.2	1.0	0.5	0.3	0.2
	H%	100.0	100.0	51.0	38.2	28.1	8.0	12.2	31.1	6.3	16.4	0.6	1.3	1.0	1.3	0.7	2.9
NIH Research Assistant	N	517	287	164	50	32	3	274	178	38	47	2	1	2	2	4	6
	V	2.7	2.7	4.3	6.6	1.0	1.4	8.0	9.4	1.3	2.1	0.1	0.1	0.2	0.3	0.1	0.2
	H	100.0	100.0	31.7	17.4	6.2	1.0	53.0	62.0	7.4	16.4	0.4	0.3	0.4	0.7	0.8	2.1
Other Federal Research Assistant	N	752	208	303	42	240	12	104	66	61	52	6	7	9	5	28	24
	V	4.0	2.0	7.9	5.6	7.7	5.5	3.0	3.5	2.1	2.3	0.4	0.5	0.7	0.8	1.0	0.7
	H	100.0	100.0	40.3	20.2	31.9	5.8	13.8	31.7	8.1	25.0	0.8	3.4	1.2	2.4	3.7	11.5
NSF Fellowship	N	312	144	111	28	47	7	76	55	52	34	12	6	9	3	5	10
	V	1.7	1.4	2.9	3.7	1.5	3.2	2.2	2.9	1.8	1.5	0.7	0.4	0.7	0.5	0.2	0.3
	H	100.0	100.0	35.6	19.4	15.1	4.9	24.4	38.2	16.7	23.6	3.8	4.2	2.9	2.1	1.6	6.9
NIH Traineeship	N	722	630	29	13	16	2	540	402	124	176	0	2	7	10	6	25
	V	3.8	6.0	0.8	1.7	0.5	0.9	15.8	21.3	4.3	7.9	0.0	0.1	0.6	1.6	0.2	0.8
	H	100.0	100.0	4.0	2.1	2.2	0.3	74.8	63.8	17.2	27.9	0.0	0.3	1.0	1.6	0.8	4.0
Other Department of Health & Human Services	N	102	153	6	2	2	2	39	56	43	74	1	0	9	13	2	6
	V	0.5	1.5	0.2	0.3	0.1	0.9	1.1	3.0	1.5	3.3	0.1	0.0	0.7	2.1	0.1	0.2
	H	100.0	100.0	5.9	1.3	2.0	1.3	38.2	36.6	42.2	48.4	1.0	0.0	8.8	8.5	2.0	3.9
Department of Education	N	251	280	20	19	19	5	32	31	50	66	75	54	7	14	47	90
	V	1.3	2.7	0.5	2.5	0.6	2.3	0.9	1.6	1.7	3.0	4.4	3.8	0.6	2.2	1.8	2.7
	H	100.0	100.0	8.0	6.8	7.6	1.8	12.7	11.1	19.9	23.6	29.9	19.3	2.8	5.0	18.7	32.1
GI Bill	N	638	65	47	2	48	0	65	11	126	25	84	3	75	7	193	17
	V	3.4	0.6	1.2	0.3	1.5	0.0	1.9	0.6	4.4	1.1	4.9	0.2	6.2	1.1	7.2	0.5
	H	100.0	100.0	7.4	3.1	7.5	0.0	10.2	16.9	19.7	38.5	13.2	4.6	11.8	10.8	30.3	26.2
Other Federal Support	N	615	305	122	24	128	4	124	68	109	76	58	52	26	14	46	67
	V	3.3	2.9	3.2	3.2	4.1	1.8	3.6	3.6	3.8	3.4	3.4	3.7	2.2	2.2	1.7	2.0
	H	100.0	100.0	19.8	7.9	20.8	1.3	20.2	22.3	17.7	24.9	9.4	17.0	4.2	4.6	7.5	22.0
Foreign Government	N	885	167	144	13	253	4	189	45	116	25	44	31	58	10	75	37
	V	4.7	1.6	3.8	1.7	8.1	1.8	5.5	2.4	4.0	1.1	2.6	2.2	4.8	1.6	2.8	1.1
	H	100.0	100.0	16.3	7.8	28.6	2.4	21.4	26.9	13.1	15.0	5.0	18.6	6.6	6.0	8.5	22.2
National Fellowship (non-federal)	N	800	522	143	38	127	25	132	88	160	117	131	146	52	36	54	72
	V	4.2	5.0	3.7	5.0	4.1	11.5	3.9	4.7	5.6	5.2	7.7	10.3	4.3	5.7	2.0	2.2
	H	100.0	100.0	17.9	7.3	15.9	4.8	16.5	16.9	20.0	22.4	16.4	28.0	6.5	6.9	6.8	13.8
Univ. Teaching Assistant	N	9550	4765	2800	554	1406	109	1309	736	1650	1181	1155	1023	624	331	594	822
	V	50.6	45.5	72.9	73.3	44.9	50.0	38.4	39.0	57.3	53.0	67.8	71.9	51.7	52.2	22.3	24.9
	H	100.0	100.0	29.3	11.6	14.7	2.3	13.7	15.4	17.3	24.8	12.1	21.5	6.5	6.9	6.2	17.3
Univ. Research Assistant	N	7903	3137	2213	418	1933	147	1720	812	1033	808	255	221	374	204	361	523
	V	41.9	30.0	57.6	55.3	61.8	67.4	50.4	43.1	35.9	36.2	15.0	15.5	31.0	32.2	13.5	15.9
	H	100.0	100.0	28.0	13.3	24.5	4.7	21.8	25.9	13.1	25.8	3.2	7.0	4.7	6.5	4.6	16.7
University Fellowship	N	3702	2070	734	155	542	54	609	362	705	488	607	545	256	146	246	312
	V	19.6	19.8	19.1	20.5	17.3	24.8	17.8	19.2	24.5	21.9	35.6	38.3	21.2	23.0	9.2	9.5
	H	100.0	100.0	19.8	7.5	14.6	2.6	16.5	17.5	19.0	23.6	16.4	26.3	6.9	7.1	6.6	15.1
Other University-Related	N	1508	1210	172	42	139	13	292	169	324	343	241	194	86	75	249	370
	V	8.0	11.6	4.5	5.6	4.4	6.0	8.6	9.0	11.3	15.4	14.2	13.6	7.1	11.8	9.3	11.2
	H	100.0	100.0	11.4	3.5	9.2	1.1	19.4	14.0	21.5	28.3	16.0	16.0	5.7	6.2	16.5	30.6
Business/Employer Funds	N	996	558	140	39	239	14	106	80	97	72	64	39	106	37	244	276
	V	5.3	5.3	3.6	5.2	7.6	6.4	3.1	4.2	3.4	3.2	3.8	2.7	8.8	5.8	9.1	8.4
	H	100.0	100.0	14.1	7.0	24.0	2.5	10.6	14.3	9.7	12.9	6.4	7.0	10.6	6.6	24.5	49.5
Own Earnings	N	9892	6811	1122	209	1049	74	1371	803	1950	1540	1236	930	848	464	2298	2774
	V	52.4	65.1	29.2	27.6	33.5	33.9	40.2	42.6	67.7	69.1	72.6	65.4	70.2	73.2	86.1	84.1
	H	100.0	100.0	11.3	3.1	10.6	1.1	13.9	11.8	19.7	22.6	12.5	13.7	8.6	6.8	23.2	40.7
Spouse's Earnings	N	4402	3211	603	128	448	38	902	507	837	728	562	478	337	215	705	1109
	V	23.3	30.7	15.7	16.9	14.3	17.4	26.4	26.9	29.1	32.7	33.0	33.6	27.9	33.9	26.4	33.6
	H	100.0	100.0	13.7	4.0	10.2	1.2	20.5	15.8	19.0	22.7	12.8	14.9	7.7	6.7	16.0	34.5
Family Support	N	4356	2361	755	149	754	48	802	428	885	676	471	407	304	134	376	514
	V	23.1	22.6	19.7	19.7	24.1	22.0	23.5	22.7	30.7	30.3	27.7	28.6	25.2	21.1	14.1	15.6
	H	100.0	100.0	17.3	6.3	17.3	2.0	18.4	18.1	20.3	28.6	10.8	17.2	7.0	5.7	8.6	21.8
Guaranteed Student Loans	N	4380	3050	588	119	353	35	840	495	1154	1016	527	393	294	211	617	775
	V	23.2	29.1	15.3	15.7	11.3	16.1	24.6	26.3	40.1	45.6	30.9	27.6	24.3	33.3	23.1	23.5
	H	100.0	100.0	13.4	3.9	8.1	1.1	19.2	16.2	26.3	33.3	12.0	12.9	6.7	6.9	14.1	25.4
National Direct Student Loans	N	927	680	77	14	45	4	128	72	314	288	176	122	61	42	124	138
	V	4.9	6.5	2.0	1.9	1.4	1.8	3.8	3.8	10.9	12.9	10.3	8.6	5.0	6.6	4.6	4.2
	H	100.0	100.0	8.3	2.1	4.9	0.6	13.8	10.6	33.9	42.4	19.0	17.9	6.6	6.2	13.4	20.3
Other Loans	N	532	379	62	13	57	9	89	49	117	117	74	47	35	15	97	128
	V	2.8	3.6	1.6	1.7	1.8	4.1	2.6	2.6	4.1	5.2	4.3	3.3	2.9	2.4	3.6	3.9
	H	100.0	100.0	11.7	3.4	10.7	2.4	16.7	12.9	22.0	30.9	13.9	12.4	6.6	4.0	18.2	33.8
Other Sources	N	662	381	93	20	101	4	128	81	109	86	65	40	69	32	96	118
	V	3.5	3.6	2.4	2.6	3.2	1.8	3.8	4.3	3.8	3.9	3.8	2.8	5.7	5.0	3.6	3.6
	H	100.0	100.0	14.0	5.2	15.3	1.0	19.3	21.3	16.5	22.6	9.8	10.5	10.4	8.4	14.5	31.0
Unduplicated Total[3]	N	18871	10469	3840	756	3129	218	3412	1885	2879	2229	1703	1423	1208	634	2669	3298

1/ Includes mathematics and computer sciences.
2/ V% denotes vertical percentage; H denotes horizontal percentage.
3/ The 2,938 Ph.D.s who did not report sources of support are omitted from this table.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 4 State of Doctoral Institution of Doctorate Recipients, by Sex and Summary Field, 1987

	Total		Field of Doctorate: Physical[1/] Sciences		Engi-neering		Life Sciences		Social Sciences		Humanities		Prof. Fields		Education	
	Men/Women		Men/Women		Men/Women		Men/Women		Men/Women		Men/Women		Men/Women		Men/Women	
U.S. Total	20908	11370	4197	830	3474	242	3722	2020	3269	2449	1930	1574	1384	679	2897	3550
Alabama	164	115	28	3	29	1	39	30	14	13	1	4	9	6	44	58
Alaska	7	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0
Arizona	350	173	68	13	44	2	72	28	48	34	30	18	21	9	64	69
Arkansas	83	29	14	1	6	0	24	5	8	3	1	1	13	3	17	16
California	2473	1222	609	98	485	42	377	211	421	367	239	214	141	60	201	227
Colorado	411	187	103	17	69	5	63	27	64	43	25	20	21	11	65	63
Connecticut	324	190	78	14	35	3	70	41	60	40	50	55	12	3	19	34
Delaware	70	26	20	3	23	2	10	4	7	7	7	6	0	0	3	4
D. C.	257	191	28	10	15	0	35	35	80	48	35	34	32	17	31	45
Florida	617	414	75	24	70	7	102	25	87	77	41	32	47	27	191	220
Georgia	360	243	70	10	42	2	63	29	58	51	19	24	35	11	72	115
Hawaii	81	48	23	1	3	0	23	17	22	19	7	7	0	0	3	4
Idaho	39	8	6	1	7	0	14	2	2	0	2	0	0	0	8	5
Illinois	1217	641	266	46	198	16	171	117	191	137	151	98	97	49	143	178
Indiana	602	323	125	30	107	3	97	62	87	48	82	49	37	23	66	107
Iowa	435	162	81	21	98	1	108	37	37	19	29	23	17	6	65	54
Kansas	243	141	40	8	19	1	58	30	46	31	23	10	10	8	47	53
Kentucky	157	65	10	5	7	0	58	12	17	17	20	5	30	3	14	22
Louisiana	184	120	33	14	22	1	49	27	17	16	11	12	30	13	22	37
Maine	17	8	6	0	2	1	6	1	1	3	0	0	0	0	2	3
Maryland	402	263	94	15	50	8	109	70	59	56	37	29	13	10	40	74
Massachusetts	1177	628	280	63	240	31	151	99	200	117	117	93	68	30	121	194
Michigan	845	425	140	26	159	8	128	67	118	94	81	71	58	21	155	137
Minnesota	299	207	38	18	60	3	83	45	38	41	32	26	16	14	31	59
Mississippi	164	90	13	1	17	0	32	10	31	26	4	1	19	6	48	46
Missouri	312	169	50	4	55	1	61	24	52	53	24	25	22	5	48	57
Montana	37	12	9	3	4	0	13	2	5	5	0	0	0	0	5	2
Nebraska	134	79	18	6	7	0	43	16	13	17	8	8	21	9	24	23
Nevada	18	14	4	0	1	0	0	2	6	5	1	0	0	0	6	7
New Hampshire	49	21	19	5	6	0	10	8	10	4	4	4	0	0	0	0
New Jersey	419	219	91	28	84	6	58	34	55	32	68	58	21	9	41	52
New Mexico	137	63	30	9	31	0	24	4	21	10	7	8	1	0	23	32
New York	2039	1240	438	84	300	25	317	218	418	343	235	203	121	60	209	303
North Carolina	478	282	84	26	60	7	151	87	59	43	59	40	17	15	48	64
North Dakota	55	21	11	0	1	0	26	1	9	4	2	1	0	0	10	15
Ohio	908	499	165	28	186	9	136	79	106	113	77	58	67	53	171	159
Oklahoma	197	135	28	5	44	1	39	20	31	21	11	7	4	14	40	67
Oregon	234	106	44	10	21	1	62	19	29	22	13	7	9	3	55	44
Pennsylvania	1112	657	224	51	222	16	104	102	200	130	93	95	101	47	165	216
Rhode Island	145	67	52	14	20	0	11	13	37	14	25	26	0	0	0	0
South Carolina	154	83	43	8	21	1	30	15	10	9	7	3	17	9	25	38
South Dakota	32	23	0	1	3	0	8	3	7	8	0	0	0	0	014	11
Tennessee	303	233	36	5	31	2	49	26	55	50	27	14	15	21	90	115
Texas	1363	694	250	43	243	13	249	149	168	103	91	74	153	62	206	246
Utah	262	101	51	7	48	2	50	22	38	20	10	9	9	7	56	34
Vermont	20	20	7	1	1	0	7	4	2	5	2	5	0	0	1	5
Virginia	428	229	64	18	99	12	78	31	62	48	25	14	26	10	74	95
Washington	397	201	83	11	64	5	108	49	48	39	41	29	20	14	33	53
West Virginia	65	41	2	0	14	11	7	14	5	1	1	23	28	0	0	0
Wisconsin	576	219	130	16	96	4	116	51	94	39	50	43	34	11	51	55
Wyoming	47	11	8	2	5	14	3	11	0	2	1	7	5	0	0	0
Puerto Rico	9	12	5	3	0	1	0	0	0	3	9	0	0	0	0	0

1/ Includes mathematics and computer sciences.

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 5 Statistical Profile of Doctorate Recipients, by Racial/Ethnic Group and Citizenship Status, 1987[1/]

		Total				American Indian	Asian				Black			
		U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total
Total Number		22863	1570	5593	32278[2/]	116	540	622	2926	4115[2/]	765	139	304	1214[2/]
Male	%	59.1	70.7	84.2	64.8	54.3	68.0	72.8	85.4	81.1	41.4	84.9	85.9	57.7
Female		40.9	29.3	15.8	35.2	45.7	32.0	27.2	14.6	18.9	58.6	15.1	14.1	42.3
Doctoral Field														
Physical Sciences[3/]	%	13.5	16.2	24.4	15.6	8.6	19.3	19.9	26.6	24.6	3.8	4.3	8.6	5.0
Engineering		6.8	22.5	27.4	11.5	6.9	25.0	30.7	32.7	31.3	1.6	9.4	10.2	4.6
Life Sciences		18.4	16.4	16.4	17.8	13.8	26.9	16.7	14.8	16.7	10.2	20.9	21.1	14.2
Social Sciences		19.0	15.6	11.6	17.7	19.0	13.9	10.9	9.5	10.3	17.8	23.0	20.1	18.9
Humanities		11.9	11.2	5.8	10.9	9.5	4.6	5.6	3.5	4.0	9.5	5.8	12.2	9.8
Education		23.9	11.0	7.5	20.0	35.3	7.6	8.7	6.0	6.7	49.5	24.5	18.1	38.9
Professional/Other		6.3	7.1	6.9	6.6	6.9	2.8	7.4	7.0	6.6	7.6	12.2	9.9	8.6
Median Age at Doct.	Yrs	33.9	33.3	32.7	33.6	37.0	32.1	32.6	32.6	32.6	38.7	35.9	35.2	37.4
Median Time Lapse BA-PhD														
Total Time	Yrs	10.9	9.8	9.3	10.4	12.2	9.4	10.1	9.5	9.6	15.1	9.1	9.7	12.7
Registered Time		7.1	6.8	6.1	6.9	6.8	6.9	7.0	6.1	6.3	8.2	6.4	6.1	7.3
Graduate School Support														
Federal Fellow/Trainee	%	13.2	4.1	3.1	10.2	25.0	17.0	3.9	2.5	4.6	16.3	3.6	7.2	12.5
Federal Research Asst.		8.8	10.6	12.5	8.9	6.0	16.3	12.7	15.7	15.3	4.2	5.0	4.9	4.4
GI Bill		3.1	0.1	0.0	2.2	6.0	1.9	0.0	0.0	0.3	3.3	0.0	0.0	2.1
Foreign Government		0.3	6.4	15.7	3.3	1.7	0.4	3.9	9.8	7.7	0.3	14.4	22.0	7.5
National Fellowship		4.4	3.1	4.6	4.1	10.3	5.0	3.1	3.2	3.5	8.1	2.2	11.2	8.2
Univ. Teaching Assistant		47.0	51.8	48.5	44.3	34.5	49.4	51.0	51.6	51.2	30.3	35.3	32.6	31.5
Univ. Research Assistant		33.9	42.5	46.3	34.2	29.3	45.2	50.0	52.3	51.0	16.1	31.7	28.9	21.1
Other University		27.8	23.6	21.5	24.6	27.6	24.3	20.9	19.1	20.0	31.4	27.3	25.7	29.4
Business/Employer		6.0	3.2	2.3	4.8	4.3	6.9	2.7	1.7	2.6	6.3	2.2	2.3	4.8
Self/Family Sources		78.7	68.5	50.7	68.0	75.0	63.7	63.3	48.7	52.9	85.8	80.6	54.9	77.3
Guaranteed Student Loan		31.2	16.8	0.7	23.0	37.1	25.4	12.1	0.2	5.3	33.6	41.0	1.6	26.4
Other Loans		9.5	5.0	1.6	7.3	10.3	7.2	2.6	0.7	1.8	15.0	12.2	3.9	11.9
Other		2.7	2.7	6.6	3.2	3.4	2.4	1.1	4.7	3.9	1.6	4.3	8.9	3.7
Unknown		2.2	3.2	4.1	9.1	3.4	1.5	2.4	2.8	2.6	2.7	2.9	6.6	3.7
Postdoctoral Plans														
Postdoctoral Study	%	22.0	27.3	33.2	22.8	17.2	33.7	27.5	37.4	35.4	12.7	25.2	20.1	16.1
Planned Employment		75.2	67.4	60.3	67.1	80.2	63.0	66.9	56.7	59.0	82.9	71.9	73.7	79.2
Educ. Institution		44.3	36.9	37.9	39.8	44.8	20.6	30.2	34.7	32.2	54.5	41.7	47.4	51.2
Industry/Business		14.1	20.2	11.4	13.0	12.9	26.7	27.0	12.9	16.8	6.5	14.4	6.3	7.3
Government		7.2	3.4	6.4	6.4	10.3	7.6	4.0	5.6	5.6	10.1	7.9	9.5	9.6
Non-profit		5.8	3.0	1.6	4.5	5.2	3.3	1.6	1.2	1.5	5.2	2.2	4.3	4.7
Other & Unknown		3.8	3.9	3.1	3.4	6.9	4.8	4.0	2.3	2.9	6.5	5.8	6.3	6.3
Postdoc Status Unknown	%	2.8	5.4	6.5	10.1	2.6	3.3	5.6	5.9	5.6	4.4	2.9	6.3	4.7
Definite Postdoct Study	%	17.1	16.3	22.0	16.7	14.7	26.1	16.1	25.5	24.1	8.0	10.1	8.6	8.4
Seeking Postdoct Study		5.0	11.0	11.2	6.0	2.6	7.6	11.4	11.9	11.3	4.7	15.1	11.5	7.7
Definite Employment		55.5	38.2	41.7	48.4	56.9	42.6	38.7	39.2	39.6	57.4	27.3	44.7	50.7
Seeking Employment		19.7	29.2	18.6	18.7	23.3	20.4	28.1	17.5	19.4	25.5	44.6	28.9	28.5
Employment Location after Doctorate														
U.S.	%[5/]	91.6	75.2	34.8	82.4	89.4	87.4	71.0	40.4	51.4	86.8	60.5	21.3	70.5
Foreign		1.4	16.0	55.7	10.1	1.5	3.5	19.5	48.6	37.9	0.0	21.1	61.0	15.1
Unreported		7.0	8.8	9.6	7.5	9.1	9.1	9.5	11.0	10.6	13.2	18.4	17.6	14.4

1/ See discussion on page 45 for description of past changes in the survey question on racial/ethnic group.
2/ Includes individuals who did not report their citizenship at time of doctorate.
3/ Includes mathematics and computer sciences.
4/ Too few respondents on which to calculate a median.
5/ The base for this percentage is the number of doctorates in the column caption group who have found definite employment.

White				Puerto Rican	Mexican-American				Other Hispanic				Other & Unknown		
U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	U.S.	Non-U.S. Perm.	Non-U.S. Temp.	Total	U.S.	Non-U.S.	Total
20358	649	1552	2584[2]	180	174	5	20	199[2]	264	86	318	676[2]	467	541	3194[2]
59.5	67.2	80.5	61.2	52.2	59.2	80.0	90.0	62.8	51.1	53.5	84.9	67.8	68.5	86.0	72.3
40.5	32.8	19.5	38.8	47.8	40.8	20.0	10.0	37.2	48.9	46.5	15.1	32.2	31.5	14.0	27.7
13.7	16.2	23.5	14.4	18.3	6.9	0.0	25.0	8.5	7.2	14.0	25.2	16.6	19.5	21.8	16.3
6.5	19.4	24.0	8.1	2.2	3.4	40.0	30.0	7.0	5.3	9.3	17.9	11.8	10.7	22.6	13.8
18.7	14.5	14.9	18.4	15.6	8.6	20.0	25.0	10.6	12.9	14.0	31.8	22.2	18.4	18.5	16.3
19.1	18.8	13.5	18.7	11.7	25.3	20.0	5.0	23.1	30.7	14.0	12.9	19.8	17.1	12.9	19.3
12.1	15.6	9.1	12.0	17.2	10.3	0.0	0.0	9.0	17.8	30.2	6.3	14.1	12.2	5.9	11.0
23.3	9.6	8.2	21.9	29.4	41.4	20.0	5.0	37.2	23.1	17.4	2.8	12.6	18.2	10.2	16.1
6.5	6.0	6.8	6.5	5.6	4.0	0.0	10.0	4.5	3.0	1.2	3.1	3.0	3.9	8.1	7.2
33.8	33.1	31.6	33.6	34.4	35.8	34.0	31.8	35.3	34.8	35.4	33.5	34.1	33.3	33.6	33.4
10.8	9.6	8.6	10.5	11.7	12.0	*[4]	8.5	11.2	10.3	10.2	9.5	10.0	10.4	10.1	10.3
7.1	6.8	6.1	7.0	7.5	7.4	*[4]	6.0	7.3	7.0	6.2	5.7	6.2	7.2	6.3	6.6
12.6	4.3	3.5	11.8	23.9	20.7	0.0	0.0	18.1	19.3	4.7	3.8	10.2	13.3	3.3	3.7
8.8	10.5	10.8	9.0	5.0	4.6	60.0	0.0	5.5	8.0	5.8	6.9	7.1	9.9	7.0	2.7
3.2	0.2	0.0	2.8	1.7	0.6	0.0	0.0	0.5	1.9	0.0	0.0	0.7	1.5	0.0	0.2
0.3	6.2	20.4	1.8	0.0	0.0	20.0	40.0	4.5	0.8	9.3	33.3	17.3	0.0	18.7	3.2
4.1	2.8	4.7	4.1	7.2	14.4	0.0	5.0	13.1	7.2	7.0	10.4	8.7	4.5	4.4	1.4
48.1	57.0	51.5	48.6	32.2	38.5	20.0	35.0	37.7	41.7	61.6	38.1	42.9	40.0	36.8	12.2
34.6	40.2	43.5	35.4	25.0	24.7	20.0	60.0	28.1	29.5	36.0	38.1	34.3	30.4	34.2	10.3
27.7	25.9	25.8	27.5	40.0	29.3	20.0	15.0	27.6	25.8	23.3	23.3	24.1	24.6	19.4	7.0
6.1	3.5	3.4	5.8	7.8	4.6	20.0	0.0	4.5	3.0	4.7	2.5	3.0	3.6	2.0	0.9
79.2	74.1	57.0	77.5	73.9	87.9	80.0	40.0	82.9	82.6	64.0	52.2	65.5	60.6	40.1	15.8
31.1	17.4	1.2	28.7	41.1	35.1	0.0	0.0	30.7	37.1	12.[illegible]	1.6	17.0	23.8	1.8	3.8
9.3	6.2	3.0	8.8	15.0	13.8	0.0	0.0	12.1	15.2	3	1.6	7.2	6.4	1.8	1.3
2.8	2.9	8.0	3.1	3.3	3.4	0.0	15.0	4.5	2.7	8.[illegible]	13.5	8.6	3.9	7.2	1.8
1.9	2.6	3.1	2.0	3.3	1.1	0.0	0.0	1.0	1.9	3.5	2.5	2.4	18.8	15.5	72.2
22.2	28.0	30.2	22.9	20.0	14.9	40.0	25.0	16.6	22.3	25.6	32.7	27.5	22.9	26.1	7.9
75.5	68.0	65.3	74.5	77.8	83.9	40.0	70.0	81.4	74.2	69.8	65.1	69.4	58.7	54.3	18.0
44.7	43.0	40.2	44.3	50.0	52.3	0.0	35.0	49.2	40.5	34.9	46.5	42.6	31.9	37.2	11.1
14.2	17.6	12.0	14.1	11.7	9.8	20.0	20.0	11.1	10.6	7.0	6.9	8.3	13.1	6.7	3.1
7.1	1.8	7.3	6.9	5.0	13.8	0.0	5.0	12.6	10.6	1.2	7.2	8.0	5.1	5.4	1.7
5.9	2.9	2.3	5.5	6.1	5.7	20.0	5.0	6.0	6.8	15.1	1.6	5.3	4.5	0.7	0.8
3.6	2.6	3.5	3.6	5.0	2.3	0.0	5.0	2.5	5.7	11.6	2.8	5.2	4.1	4.4	1.4
2.4	4.0	4.5	2.6	2.2	1.1	20.0	5.0	2.0	3.4	4.7	2.2	3.1	18.4	19.6	74.1
17.2	17.9	20.0	17.4	16.7	9.8	20.0	20.0	11.1	16.3	15.1	22.0	18.8	18.0	16.5	5.5
4.9	10.2	10.2	5.4	3.3	5.2	20.0	5.0	5.5	6.1	10.5	10.7	8.7	4.9	9.6	2.4
56.0	41.1	45.5	54.8	53.3	58.0	40.0	40.0	55.8	54.9	31.4	53.5	50.9	42.6	34.9	12.3
19.5	26.8	19.8	19.7	24.4	25.9	0.0	30.0	25.6	19.3	38.4	11.6	18.5	16.1	19.4	5.7
92.1	83.1	33.4	88.5	91.7	87.1	100.0	50.0	84.7	87.6	81.5	17.6	52.3	87.4	31.7	60.2
1.4	9.7	59.5	4.9	0.0	3.0	0.0	37.5	5.4	4.1	14.8	77.6	41.6	1.0	59.3	29.6
6.6	7.1	7.1	6.6	8.3	9.9	0.0	12.5	9.9	8.3	3.7	4.7	6.1	11.6	9.0	10.2

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX A, TABLE 6 Institutions Granting Doctorates, by Summary Field, 1987 [1/]

	1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Math and Computer Sci.	Engineering	Biosciences	Health Sciences	Agricultural Sciences	Psychology	Other Social Sciences	History	Eng. and Amer. Lang. and Lit.	Other Humanities	Education	Professional and Other Flds.
TOTAL ALL INSTITUTIONS	32278	1236	1974	627	1190	3716	3824	806	1112	3098	2620	587	669	2248	6447	2124
ALABAMA																
Auburn University	105		7	1	5	14	11	1	13	12	1	1	1		38	
Univ of Alabama-Birmingham	41	1	1		1	2	15	17		2					2	
Univ of Alabama-Huntsville	14	4			2	8										
Univ of Alabama-University	110	1	5		3	6	3			11	1		1	2	62	15
Univ of South Alabama	9						8	1								
ALASKA																
Univ of Alaska	7			3			3		1							
ARIZONA																
Arizona State Univ	148	5	6	2	2	19	5	1		16	19	3	7	5	40	18
Northern Arizona Univ	61						8				1	2			50	
Univ of Arizona	314	24	12	20	10	27	52	14	20	30	16	1	7	23	43	15
ARKANSAS																
U of Arkansas-Fayetteville	110	5	10			6	11		16	9	2	1	1		33	16
U of Arkansas-Med Sci Camp	2						2									
CALIFORNIA																
Biola Univ	5									5						
Cal Inst Integral Studies	14									14						
Cal Inst of Technology	147	30	26	11	10	57	11				2					
Cal Sch Prof Psych-Berkeley	28									28						
Cal Sch Prof Psych-Fresno	35									35						
Cal Sch Prof Psych-LA	61									61						
Cal Sch Prof Psych-San Diego	32									32						
Claremont Graduate School	88				1					12	14	3	1	13	34	10
Fuller Theological Seminary	30									18	2			2		8
Golden Gate Univ	9															9
Graduate Theological Union	20													7		13
Hebrew Union College																
Loma Linda Univ	15						4	3							8	
Naval Postgraduate School	9			4	1	4										
Pacific Grad Sch of Psych	20									20						
Pepperdine Univ	19														19	
Rand Grad Sch Policy Studies	1										1					
Stanford Univ	560	41	21	29	30	151	47		3	22	56	12	11	46	61	30
U.S. International Univ	107									64	1				19	23
Univ of California-Berkeley	724	43	53	14	55	144	92	19	17	18	84	21	15	74	33	42
Univ of California-Davis	249	12	21	6	4	23	114	5	26	13	14	1	6	4		
Univ of California-Irvine	98	8	10		5	10	28			1	8	6	5	14		3
Univ of Calif-Los Angeles	448	28	20	13	28	59	52	17		26	53	22	1	71	39	19
Univ of Calif-Riverside	88	4	6		6		18		10	6	22		6	2	8	
Univ of Calif-San Diego	163	14	23	23	9	14	38			5	14	2	5	16		
Univ of Calif-San Francisco	49		5		2		18	12		4	8					
Univ of Calif-Santa Barbara	175	12	14	9	4	15	17	2		21	20	16	8	19	18	
Univ of Calif-Santa Cruz	47	8	4	11	4		4		1	7	4		1	3		
Univ of La Verne	6														4	2
Univ of the Pacific	15		1				1	1							12	
Univ of San Diego	17														17	
Univ of San Francisco	69														69	
Univ of Santa Clara	1					1										
Univ of Southern California	325	5	13	2	4	49	18	10		27	25	5	10	25	87	45
Wright Institute, The	21									21						
COLORADO																
Colorado School of Mines	34	2	2	15		12					2					1
Colorado State Univ	173	5	15	11	11	33	33	5	17	12	8				19	4
Univ of Colorado	249	19	16	11	7	29	28	5		15	35	5	2	18	43	16
Univ of Denver	70	3			1		2			18	7	1	4	6	17	11
Univ of Northern Colorado	72				2					6	4			9	49	2
CONNECTICUT																
Univ of Connecticut	192	1	18		5	20	36	4	2	20	21	3	2	7	53	
Univ of Hartford	2													2		
Wesleyan Univ	11		3				6							2		
Yale Univ	309	27	22	3	13	18	52	5	6	15	44	15	9	65		15
DELAWARE																
Univ of Delaware	96	5	7	5	6	25	12		2	6	8	2	4	7	7	
DISTRICT OF COLUMBIA																
American Univ	60	2	5		1		1			13	23	1			11	3
Catholic Univ of America	112	4	5	1		4	3	10		21	6	3	9	15	11	20
Gallaudet Univ	2														2	
George Washington Univ	142	1	3		5	10	14	1		11	14	2	2	9	48	22
Georgetown Univ	65	2	6				19				11	4		23		
Howard Univ	67	1	2			1	18	4		12	17	1			4	7

[1/] Refer to explanatory note on page 45 and the description of doctoral fields inside back cover.

	1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Math and Computer Sci.	Engineering	Biosciences	Health Sciences	Agricultural Sciences	Psychology	Other Social Sciences	History	Eng. and Amer. Lang. and Lit.	Other Humanities	Education	Professional and Other Flds.
FLORIDA																
Barry Univ	2															2
Florida Atlantic Univ	14					1									13	
Florida Inst of Technology	19			1		3	1			10					3	1
Florida State Univ	261	3	11	7	4		14	2	2	27	19	4	4	30	98	36
Nova Univ	239				6		1			14					192	26
Univ of Central Florida	7					2									5	
Univ of Florida	318	6	29	1	4	57	34	8	43	24	22	3	3	7	62	15
Univ of Miami	118	1	3	12	3	7	18		1	27	7	1	4	15	19	
Univ of South Florida	53		5	2	1	7	3			14			2		19	
GEORGIA																
Atlanta Univ	52		1				7			3	9		1	1	27	3
Emory Univ	77		15		3		15			9	8	3	1	22		1
Georgia Inst of Technology	88	9	10	5	11	44	3			5						1
Georgia State Univ	107				2					15	5		2		67	16
Medical College of Georgia	4						4									
Univ of Georgia	275	3	15	2	4		33	6	24	36	19	1	2	10	93	27
HAWAII																
Univ of Hawaii at Manoa	129	4	5	13	2	3	15	9	16	13	28	3		11	7	
IDAHO																
Idaho State Univ	7				1		5						1			
Univ of Idaho	40		4	2		7	4		7		2	1			13	
ILLINOIS																
DePaul Univ	9						1			6				2		
Illinois Inst of Technology	50	2	2		7	18	3			13						5
Illinois State Univ-Normal	41				1		4					1	3	1	31	
Loyola Univ of Chicago	69		1				7			19	5	2	2	3	30	
Lutheran Sch of Theol-Chicgo	11															11
Northern Illinois Univ	72		2	2			2			10	6	2	4	1	43	
Northwestern Univ	321	10	28	5	22	56	20	10		31	36	9	4	45	12	33
Rush Univ	9						5	4								
Southern Ill Univ-Carbondale	158	1	2		1	1	6	6	2	17	9	1	1	3	90	18
Southern Ill Univ-Edwardsvle	8														8	
Univ of Chicago	322	23	19	4	11		43			20	63	30	6	54	12	37
U of Health Sci-Chicago Med	13						2			11						
U of Ill-Chicago	160	5	14	1	3	29	28	23		12	19	6	3	1	9	7
U of Ill-Urbana-Champaign	615	42	49	10	45	110	57	8	57	14	37	6	17	42	86	35
INDIANA																
Ball State Univ	49						1			6	1	2	2	7	30	
Indiana State Univ	25						3			12	2				8	
Indiana Univ-Bloomington	374	10	24	2	16		27	4		11	39	11	13	68	117	32
Indiana Univ Sch of Medicine	9							9								
Purdue Univ	369	14	45	5	16	94	52	14	37	13	24		8	8	18	21
Univ of Notre Dame	99	10	8		5	16	12			10	17		6	6		9
IOWA																
Drake Univ	6												1		5	
Iowa State Univ	296	16	34	1	14	61	41	1	48	9	23				45	3
Maharishi Intl Univ	2						2									
Univ of Northern Iowa	6					2									4	
Univ of Iowa	287	3	18	3	13	36	36	17		15	9	3	14	34	65	21
KANSAS																
Kansas State Univ	164	5	11		11	8	15	3	37	8	8	4			50	4
Univ of Kansas	216	4	13	2	2	9	27	5		47	14	4		25	50	14
Wichita State Univ	4					3		1								
KENTUCKY																
Southern Bapt Theolog Semin	43											3		10	7	23
Univ of Kentucky	148	2	6	2	1	6	29	7	22	18	9	6		5	25	10
Univ of Louisville	31		4			1	11	1		6	1	1			4	2
LOUISIANA																
Louisiana St U & A&M College	156	1	14	13	5	16	22	2	12	13	7	3	3	7	27	11
Louisiana St U Med-New Orlns	13						13									
Louisiana St U Med-Shreveprt	3						3									
Louisiana Tech Univ	14					4										10
New Orleans Bapt Theolog Sem	27													3	7	17
Northeast Louisiana Univ	2							2								
Northwestern St Univ of LA	9														9	
Tulane Univ of Louisiana	49		2		3	3	13	9		3	5	2	3	1		5
Univ of New Orleans	26		5							2	3				16	
U of Southwestern Louisiana	5				4								1			
MAINE																
Univ of Maine	25	4	2			3	1		6	4					5	

APPENDIX A, TABLE 6 (Continued) [1/]

	1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Math and Computer Sci.	Engineering	Biosciences	Health Sciences	Agricultural Sciences	Psychology	Other Social Sciences	History	Eng. and Amer. Lang. and Lit.	Other Humanities	Education	Professional and Other Flds.
MARYLAND																
Johns Hopkins Univ	213	7	12	13	6	20	53	32		5	33	16	4	8	4	
Morgan State Univ	4														4	
Peabody Inst Johns Hopkins	5													5		
St. Mary's Sem. & Univ																
Uniformed Serv U of Hlth Sci	10						8			2						
U of Maryland-Baltimore Cnty	15				1		8			3	2			1		
U of Maryland-College Park	378	27	20	5	17	38	32	2	11	39	31	4	9	19	106	18
U of Maryland-Eastern Shore	2			1					1							
U of Maryland Sch of Med	38						5	27								6
MASSACHUSETTS																
Boston College	88	3	5				1			9	15	5	5	9	27	9
Boston Univ	271	5	8		4	5	36	12		30	33	4	6	32	85	11
Brandeis Univ	97	6	9		6		20	1		3	30	1	5	9		7
Clark Univ	29	1	6				3			7	11	1				
Harvard Univ	431	23	15	8	19	8	65	14		8	62	20	7	66	87	29
Mass Coll Pharm & Health Sci	1						1									
Mass Inst of Technology	458	43	29	20	34	207	43		2	3	50	2		7		18
Northeastern Univ	46	2	13		4	1	2	2		3	4				15	
Simmons College	1															1
Smith College	3															3
Springfield College	3														3	
Tufts Univ	42	1	2		1	3	16			4	12		2	1		
Univ of Lowell	17	4	8			3	2									
Univ of Mass-Amherst	309	12	33	1	16	38	18	2	9	11	22	1	11	16	98	21
Worcester Polytechnic Inst	9	1			1	6	1									
MICHIGAN																
Andrews Univ	22									3				4	12	3
Michigan State Univ	426	7	33	3	10	37	55	2	41	34	35	5	8	21	103	32
Michigan Technological Univ	17	1	1	1		11	3									
Oakland Univ	6					4									2	
Univ of Detroit	17		3							14						
Univ of Michigan	587	11	26	20	20	104	53	23	2	38	57	14	13	81	81	44
Wayne State Univ	122	2	18	1	3	11	13	3		19	3	1	3	2	39	4
Western Michigan Univ	73		1		5					8	1				55	3
MINNESOTA																
Univ of Minnesota-Minneapls	506	13	22	6	15	63	56	20	52	41	38	11	9	38	90	32
MISSISSIPPI																
Delta State Univ	3														3	
Jackson State Univ	2														2	
Mississippi State Univ	73		1		1	8	7		18	7	2				18	11
Univ of Mississippi	72		1			9	4	2		13	1			1	30	11
U of Mississippi-Med Center	7						7									
Univ of Southern Mississippi	97		10	1			2	2		34			1	3	41	3
MISSOURI																
Concordia Seminary	1															1
Midwest Bapt Theolog Semin	13													7		6
St. Louis Univ	71			2			7	2		16	4	1	1	6	27	5
U of Missouri-Columbia	183	1	4	2	3	12	18		22	29	10	1	4	4	59	14
U of Missouri-Kansas City	44		3		1		4			16				8	12	
U of Missouri-Rolla	44	2	5	1	7	29										
U of Missouri-St. Louis	13		2							6					5	
Washington University	112	8	7		6	15	32			12	12	1	1	15	2	1
MONTANA																
Montana State Univ	24	2	3	1	2	4	2		4						6	
Univ of Montana	25		1		3		6		3	10					1	1
NEBRASKA																
Creighton Univ	1						1									
Univ of Nebraska-Lincoln	212	5	13	1	5	7	23		35	23	7	2	6	8	47	30
NEVADA																
Univ of Nevada-Las Vegas	6														6	
Univ of Nevada-Reno	26		3	1		1	2			11			1		7	
NEW HAMPSHIRE																
Dartmouth College	38	5	6	4	2	5	14			2						
Univ of New Hampshire	32	3	3	1		1	3		1	6	6	4	4			
NEW JERSEY																
Drew Univ	22											1	7	10		4
Fairleigh Dickinson Univ	12									4					8	
New Jersey Inst Technology	5					5										
Princeton Theolog Seminary	13													4		9
Princeton Univ	217	21	22	9	15	36	16			6	26	12	7	46		1

[1/] Refer to explanatory note on page 45 and the description of doctoral fields inside back cover.

	1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Math and Computer Sci.	Engineering	Biosciences	Health Sciences	Agricultural Sciences	Psychology	Other Social Sciences	History	Eng. and Amer. Lang. and Lit.	Other Humanities	Education	Professional and Other Flds.
NEW JERSEY (cont'd)																
Rutgers St U-New Brunswick	295	3	19	6	11	26	46	2	17	22	18	9	8	22	70	16
Rutgers St U-Newark	15		3				4			4	3					1
Seton Hall Univ	19		3							1					15	
Stevens Inst of Technology	33	2			5	23				3						
U of Med & Dent of NJ	7						7				-					
NEW MEXICO																
New Mexico Inst Mining&Tech	3			1		2										
New Mexico State Univ	70	3	5		3	15	7		12	5					20	
Univ of New Mexico	127	9	9		9	14	9			18	8	3	1	11	35	1
NEW YORK																
Adelphi Univ	47				1			1		33						12
Alfred Univ	5					5										
City U of NY-Grad Sch/U Ctr	232	14	11	1	4	10	33	5		67	25	2	5	40	1	14
Clarkson Univ	26	5	2		4	15										
Columbia Univ	365	18	20	8	13	39	38	17		27	53	20	18	38	15	41
Columbia U-Teachers College	234													1	233	
Cornell Univ	432	50	27	5	23	86	62	4	47	12	49	6	15	25	10	11
Cornell Univ Medical College	13						13									
Fordham Univ	95						7			29	11	2	1	6	28	11
Hebrew Union College																
Hofstra Univ	71									57					14	
Jewish Theol Sem of America	6											1		2		3
The Juilliard School	19													19		
Long Island U-Brooklyn Camp	15									15						
Manhattan School of Music	12													12		
New School for Social Rsrch	35									19	14			2		
New York Medical College	7						7									
New York Univ	389	7	12	1	33		35	20		52	33	8	8	61	74	45
Pace Univ	4															4
Polytechnic Univ	49	3	5		12	28										1
Rensselaer Polytechnic Inst	125	7	15		12	73	5				8					5
Rockefeller Univ	15	3					12									
St. Bonaventure Univ																
St. John's Univ	41						6	6		18	1		1	1	8	
State Univ of NY-Albany	100	7	12	3	2		1			20	18		7	9	18	3
State Univ of NY-Binghamton	63		6	2	6		6			10	21	2	5	3		2
State Univ of NY-Buffalo	258	6	17	1	15	28	44	4		20	21	4	17	17	53	11
SUNY Coll-Envirn Sci&Forstry	13		1	2		1	5		3		1					
SUNY-Hlth Sci Ctr-Brooklyn	4						4									
SUNY-Hlth Sci Ctr-Syracuse	4						4									
State Univ of NY-Stony Brook	191	20	13	9	11	15	42	5		30	13	3	8	19		
Syracuse Univ	135	3	4	1	9	15	15	1		13	25	1	3	8	30	7
Union Theological Seminary	10									1				1		8
Union Univ	1				1											
Union U-Albany Med College	13						13									
Univ of Rochester	197	23	16	1	14	10	30	6		11	18	6	10	20	28	4
Yeshiva Univ	19	1								12	1			1		4
Yeshiva U-Einstein Coll Med	34						34									
NORTH CAROLINA																
Duke Univ	154	7	17		6	13	54		2	5	15	11	5	12	2	5
East Carolina U-Sch of Med	1						1									
North Carolina St U-Raleigh	200	1	16	1	7	51	40		47	12	5			1	19	
U of N Carolina-Chapel Hill	310	6	36	4	8	3	57	20		26	26	14	19	32	35	24
U of N Carolina-Greensboro	81						4			11	2		4	1	56	3
Wake Forest Univ	14		1				13									
NORTH DAKOTA																
North Dakota State Univ	27		7			1	7		12							
Univ of North Dakota	49		2	2			8			9		2	1		25	
OHIO																
Air Force Inst of Technology	10	4			1	5										
Bowling Green State Univ	67						8	1		12	3	3	9	6	13	12
Case Western Reserve Univ	161	6	20	2	9	42	22	15		11	9	1	5	5		14
Cleveland State Univ	10		1			6	3									
Hebrew Union College	6											1		1		4
Kent State Univ	116	5	2	1	4		6			22	8	3	6	5	38	16
Medical College of Ohio	8						7	1								
Miami Univ	39		3				4			7	3	4	3		15	
Ohio State Univ	567	17	27	7	21	94	56	15	27	40	32	7	15	26	131	52
Ohio Univ	91	6	8		1	3	3	1		20		1	1	2	31	14
Univ of Akron	85	3	15			12	1			14	6	1			33	
Univ of Cincinnati	178	5	12	6	3	22	25	8		15	7	4		23	40	8
Univ of Dayton	6					6										
Univ of Toledo	56	2	2			5	2	3		10			3		29	
Wright State Univ	7						7									

APPENDIX A, TABLE 6 (Continued) [1/]

	1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Math and Computer Sci.	Engineering	Biosciences	Health Sciences	Agricultural Sciences	Psychology	Other Social Sciences	History	Eng., and Amer. Lang., and Lit.	Other Humanities	Education	Professional and Other Flds.
OKLAHOMA																
Oklahoma State Univ	187	7	11			22	18		22	16	6	1	2	1	69	12
Univ of Oklahoma	119	1	7	2	4	14	11	8		10	18	3	1	8	26	6
Univ of Tulsa	26			1		9				2				2	12	
OREGON																
Oregon Graduate Center	12	4	2	2	1	3										
Oregon Health Sciences Univ	8						8									
Oregon State Univ	141	2	12	10	6	17	23	2	29	2	2				32	4
Portland State Univ	18		1		1	2	2				4				8	
Univ of Oregon	140	5	3	2	3		14	3		16	6	2	5	13	59	9
Western Conserv Bapt Semin	21									21						
PENNSYLVANIA																
Annenberg Research Inst	4											2		2		
Bryn Mawr College	40	2	1				4			8	1	1		15		8
Carnegie-Mellon Univ	111	9	4		15	44	5			5	12	4	3	4		6
Drexel Univ	44		5	7	4	23	2									3
Duquesne Univ	13									7				5		1
Hahnemann Univ	7						6			1						
Indiana Univ of Pennsylvania	15												6	2	7	
Lehigh Univ	81	6	7		6	36	3			1	2	1	3		16	
Med College of Pensylvania	3						3									
Pennsylvania State Univ	357	26	30	10	8	67	30	3	24	24	31		3	12	55	34
Phila Coll of Pharm & Sci	3						2	1								
Temple Univ	291	8	12	1	6		15	2		53	21	3	5	23	130	12
Thomas Jefferson Univ	7						7									
Univ of Pennsylvania	396	12	23		14	40	53	8		20	73	21	10	37	47	38
Univ of Pittsburgh	384	15	27	2	7	28	15	23		32	39	2	2	22	126	44
Villanova Univ	8		8													
Westminster Theolog Semin	5															5
PUERTO RICO																
Univ of Puerto Rico	21		8				1							12		
RHODE ISLAND																
Brown Univ	145	18	17	3	11	9	7			3	31	5	8	33		
Providence College	1											1				
Univ of Rhode Island	66		5	9	3	11	14		3	14	3		4			
SOUTH CAROLINA																
Clemson Univ	56	1	5	1	3	13	10		7		1				4	11
Medical Univ South Carolina	13				1		12									
Univ of South Carolina	168	3	21	12	4	9	9	7		11	7	1	4	5	59	16
SOUTH DAKOTA																
S Dakota Sch of Mines & Tech	4			1		3										
South Dakota State Univ	9								7		2					
Univ of South Dakota	42						4			13					25	
TENNESSEE																
East Tennessee State Univ	18						3	1							14	
Geo Peabody Coll for Teachrs	124									10					114	
Meharry Medical College	4						4									
Memphis State Univ	50				4			2		7	1			4	26	6
Middle Tennessee State Univ	6		1								1		1	1	2	
Tennessee Technological Univ	7					7										
U of Tenn-Ctr for Health Sci	5						5									
Univ of Tennessee-Knoxville	203	7	9		2	20	30	2	6	34	18		8	1	36	30
Vanderbilt Univ	119	2	10		6	6	18	4		20	14	5	2	19	13	
TEXAS																
Baylor College of Medicine	30						29	1								
Baylor Univ	11	2	2								1		1	3	2	
Dallas Theological Seminary	10													1		9
East Texas State Univ	67									3					64	
Lamar Univ	6					6										
North Texas State Univ	182	5	7		4		16			18	9	1	1	15	89	17
Rice Univ	96	11	13	8	6	32	3			5	7	1	1	7		2
Sam Houston State Univ	8										8					
Southern Methodist Univ	26			2	3	13	3				5					
Southwestern Bapt Theol Sem	63									1		1		10	7	44
Stephen F Austin St Univ	2								2							
Texas A&I Univ	7														7	
Texas A&M Univ	366	7	24	15	14	67	44	7	59	15	11	1	3	2	62	35
Texas Christian Univ	16	4	1							4			4	3		
Texas Southern Univ	23														23	
Texas Tech Univ	116	1	9	3	4	12	10		5	29	2	1	1	7	16	16
Texas Woman's Univ	92		1				7	21		10	5		3	1	30	14
Univ of Dallas	5									2	1		1	1		
Univ of Houston	145	4	18	1	6	19	6	1		20	3	1	2		58	6

[1/] Refer to explanatory note on page 45 and the description of doctoral fields inside back cover.

	1987 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Math and Computer Sci.	Engineering	Biosciences	Health Sciences	Agricultural Sciences	Psychology	Other Social Sciences	History	Eng. and Amer. Lang. and Lit.	Other Humanities	Education	Professional and Other Flds.
TEXAS (cont'd)																
Univ of Texas-Arlington	40	1	1		8	20				2	2			3		3
Univ of Texas-Austin	611	31	27	8	27	85	42	51		37	61	4	12	67	94	65
Univ of Texas-Dallas	41	5		6			6	5		2				6		11
Univ of Texas-El Paso	3			3												
U Tex-Hlth Sci Ctr-Dallas	29					2	19			8						
U Tex-Hlth Sci Ctr-Houston	35				1		17	17								
U Tex-Hlth Sci Ctr-San Anton	11						11									
U Tex-Med Brnch-Galveston	16						16									
UTAH																
Brigham Young Univ	105		4			8	7			12	3	3	1	2	65	
Univ of Utah	183	6	21	2	13	29	16	20		19	11		4	9	17	16
Utah State Univ	75	9	3			13	13		16	9	4				8	
VERMONT																
Middlebury College	7													7		
Univ of Vermont	33		8			1	10		1	7					6	
VIRGINIA																
College of William & Mary	41	4		7			2		1			4			23	
George Mason Univ	13										7				5	1
Old Dominion Univ	16	1		3		7					5					
Union Theological Seminary	6											1				5
Univ of Virginia	217	10	13	2	9	27	23	2		18	24	8	15	11	53	2
Virginia Commonwealth Univ	40		4							22	2				5	7
VA Commonwlth U-Med Coll VA	31	1	1				27	2								
Virginia Polytch Inst & St U	293		13	6	8	77	24	1	27	22	10				83	22
WASHINGTON																
Gonzaga Univ	14														14	
Seattle Univ	23														23	
Univ of Washington	409	14	22	16	24	53	50	22	17	25	35	4	14	39	40	34
Washington State Univ	152	4	10	2	2	16	45	1	22	12	15	5	2	6	9	1
WEST VIRGINIA																
West Virginia Univ	106		1	1		14	14		4	9	10	2			51	
WISCONSIN																
Institute of Paper Chemistry	6		3			2	1									
Marquette Univ	55		2			9	6			2		1	3	1	19	12
Medical College of Wisconsin	11						11									
Univ of Wisconsin-Madison	667	27	49	20	35	84	87	20	38	38	71	23	7	51	80	37
Univ of Wisconsin-Milwaukee	56	3	4	2	1	5	4			3	19		6	1	7	1
WYOMING																
Univ of Wyoming	58	1	4	2	3	5	11		6	3	8	3			12	

Top 40 Doctorate-Granting Institutions, 1987

Institution	Number of Doctorates	Institution	Number of Doctorates
1. Univ of California-Berkeley	724	21. Texas A&M Univ	366
2. Univ of Wisconsin-Madison	667	22. Columbia Univ	365
3. Univ of Illinois-Urbana/Champaign	615	23. Pennsylvania State Univ	357
4. Univ of Texas-Austin	611	24. Univ of Southern California	325
5. Univ of Michigan-Ann Arbor	587	25. Univ of Chicago	322
6. Ohio State Univ	567	26. Northwestern Univ	321
7. Stanford Univ	560	27. Univ of Florida	318
8. Univ of Minnesota-Minneapolis	506	28. Univ of Arizona	314
9. Massachusetts Inst of Technology	458	29. Univ of N Carolina-Chapel Hill	310
10. Univ of California-Los Angeles	448	30. Univ of Massachusetts-Amherst	309
11. Cornell Univ	432	31. Yale Univ	309
12. Harvard Univ	431	32. Iowa State Univ	296
13. Michigan State Univ	426	33. Rutgers St Univ-New Brunswick	295
14. Univ of Washington	409	34. Virginia Polytch Inst & St U	293
15. Univ of Pennsylvania	396	35. Temple Univ	291
16. New York Univ	389	36. Univ of Iowa	287
17. Univ of Pittsburgh	384	37. Univ of Georgia	275
18. Univ of Maryland-College Park	378	38. Boston Univ	271
19. Indiana Univ-Bloomington	374	39. Florida State Univ	261
20. Purdue Univ	369	40. State Univ of NY-Buffalo	258

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

APPENDIX B

Appendix Table B presents the number of doctorate recipients by fine field of doctorate, 1977-1987. The Survey of Earned Doctorates questionnaire follows the table.

APPENDIX TABLE B Number of Doctorate Recipients by Fine Field, 1977-1987

	Year of Doctorate										
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
TOTAL ALL FIELDS	31715	30875	31239	31020	31357	31105	31240	31301	31243	31843	32278
PHYSICAL SCIENCES	4379	4193	4299	4111	4170	4291	4426	4452	4531	4806	5027
MATHEMATICS	933	838	769	744	728	720	701	698	688	729	740
Applied Mathematics	113	108	111	102	118	108	125	108	116	135	131
Algebra	88	87	88	78	56	60	55	65	55	46	57
Analysis & Functional Analysis	153	118	111	91	105	98	76	71	83	81	86
Geometry	26	22	25	35	29	32	44	27	35	38	30
Logic	17	24	21	24	18	17	21	25	30	23	18
Number Theory	32	18	17	28	24	28	19	27	18	20	15
Probability & Math Statistics	159	168	165	151	163	165	151	181	150	141	143
Topology	70	56	61	57	55	45	44	42	35	34	41
Computing Theory & Practice	101	55	25	13	16	11	12	13	15	10	14
Operations Research	42	43	43	41	36	36	20	27	22	29	22
Mathematics, General	88	92	80	83	77	84	86	78	85	125	137
Mathematics, Other	44	47	22	41	31	36	48	34	44	47	46
COMPUTER SCIENCE	31	121	210	218	232	220	286	295	310	398	450
Computer Sciences	31	121	210	218	232	220	264	256	249	354	384
Information Sciences & Systems	-	-	-	-	-	-	22	39	61	44	66
PHYSICS AND ASTRONOMY	1150	1067	1108	983	1015	1014	1043	1080	1080	1187	1236
Astronomy	63	64	58	52	50	52	50	42	43	52	46
Astrophysics	57	74	57	69	59	50	65	56	57	57	54
Acoustics	12	14	13	23	13	11	14	21	10	15	17
Atomic and Molecular	105	88	72	69	66	96	71	77	58	70	79
Electron	-	-	-	-	-	-	1	2	4	2	6
Electromagnetism	9	10	6	-	-	-	-	-	-	-	-
Elementary Particles	138	135	121	117	119	119	136	138	154	147	159
Fluids	14	13	14	15	14	13	15	11	16	6	21
Nuclear	94	77	103	73	63	53	90	72	86	89	74
Optics	31	33	46	43	54	42	50	53	51	58	50
Plasma	72	68	62	59	65	69	72	73	55	61	70
Polymer	-	-	-	-	-	-	10	8	11	11	15
Thermal	7	11	7	5	7	-	-	-	-	-	-
Solid State	258	243	243	201	253	235	222	258	248	280	287
Physics, General	173	151	194	165	164	167	150	170	176	222	240
Physics, Other	117	86	112	92	88	107	97	99	111	117	118
CHEMISTRY	1571	1544	1566	1538	1612	1680	1759	1765	1836	1903	1974
Analytical	174	178	207	185	229	190	264	228	285	357	314
Agricultural and Food	6	8	11	-	-	-	-	-	-	-	-
Inorganic	198	201	195	189	188	226	215	233	251	260	240
Nuclear	24	13	14	14	12	20	13	18	7	18	13
Organic	479	454	469	484	494	519	503	525	494	511	510
Pharmaceutical	50	51	43	52	52	55	78	56	60	58	64
Physical	339	310	326	282	275	324	311	329	304	293	302
Polymer	55	57	67	61	62	50	62	63	84	72	96
Theoretical	38	46	50	47	33	32	48	37	48	41	46
Chemistry, General	146	161	126	157	193	175	177	183	213	289	299
Chemistry, Other	62	65	58	67	74	89	88	93	90	104	90
EARTH, ATMOSPHERIC, & MARINE SCI	694	623	646	628	583	657	637	614	617	589	627
Atmospheric Physics & Chemistry	15	22	16	19	15	17	21	11	16	21	24
Atmospheric Dynamics	32	21	26	20	27	22	16	25	21	16	17
Meteorology	-	-	-	-	-	-	17	28	23	27	17
Atmos & Meteorological Sci, General	-	-	-	-	-	-	16	5	10	7	16
Atmos & Meteorological Sci, Other	46	34	42	51	33	26	27	12	10	7	13
Geology	22	28	28	20	27	25	105	124	111	118	114
Geochemistry	57	51	57	51	48	51	48	43	48	37	31
Geophysics and Seismology	73	60	81	71	72	81	75	68	92	89	74
Paleontology	26	31	36	21	19	24	17	35	23	16	21
Fuel Technology, Petroleum	5	2	4	-	-	-	-	-	-	-	-
Mineralogy, Petrology	60	34	33	47	30	41	24	28	28	17	24
Stratigraphy, Sedimentation	42	32	34	40	42	47	25	16	23	14	22
Geomorphology & Glacial Geology	22	24	14	15	13	21	10	9	13	11	18
Applied Geology	20	15	19	27	21	25	8	7	8	4	5
Geological Sciences, General	44	45	37	48	45	38	15	10	11	12	18
Geological Sciences, Other	31	22	24	21	16	29	21	25	11	12	29
Environmental Sciences	54	45	53	40	54	53	50	45	42	35	29
Hydrology and Water Resources	23	31	20	27	21	24	20	18	17	16	18
Oceanography	113	98	91	85	70	92	87	78	68	78	73
Marine Sciences	9	28	31	25	30	41	22	21	24	22	38
Physical Sciences, Other	-	-	-	-	-	-	13	6	18	30	26

	Year of Doctorate										
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
ENGINEERING	2643	2423	2490	2479	2528	2646	2781	2913	3166	3376	3716
Aerospace, Aeronautic & Astronautic	115	103	81	81	97	86	106	119	124	118	142
Agricultural	33	43	66	68	64	48	58	74	60	52	74
Bioengineering & Biomedical	75	79	69	68	64	59	74	70	69	67	75
Ceramic	30	24	24	24	24	20	24	25	19	25	42
Chemical	306	261	287	285	296	306	349	361	440	476	528
Civil	269	236	236	240	287	308	354	351	358	387	441
Communications	-	-	-	-	-	-	25	11	30	23	26
Computer	123	76	78	62	71	72	83	56	55	77	61
Electrical, Electronics	544	463	533	478	478	544	517	593	631	707	692
Engineering Mechanics	102	95	85	91	78	103	68	91	89	94	113
Engineering Physics	20	15	17	18	22	12	10	8	12	13	13
Engineering Science	-	-	-	-	-	-	30	28	31	30	26
Environmental Health Engineering	67	67	66	66	71	60	43	57	33	42	36
Industrial	73	51	82	77	66	79	86	84	92	101	120
Materials Science	125	125	125	143	113	147	157	168	188	186	238
Mechanical	270	282	281	293	282	334	311	336	424	442	544
Metallurgical	93	98	87	106	97	88	87	78	96	93	112
Mining and Mineral	2	7	4	4	8	7	22	16	16	22	27
Naval Architecture, Marine Eng	-	-	-	-	-	-	4	5	8	9	7
Nuclear	105	107	95	112	130	121	103	120	96	97	87
Ocean	-	-	-	-	-	-	12	11	25	14	24
Operations Research	76	84	67	63	80	58	44	50	54	54	51
Petroleum	18	19	24	31	21	27	22	17	24	18	23
Polymer	-	-	-	-	-	-	21	31	40	37	34
Systems Engineering	71	63	75	61	68	49	57	52	57	33	46
Engineering, General	33	44	32	42	36	29	30	29	26	55	55
Engineering, Other	93	81	76	66	75	89	84	72	69	104	79
LIFE SCIENCES	4920	5040	5223	5461	5611	5709	5552	5755	5776	5732	5742
BIOLOGICAL SCIENCES	3484	3516	3646	3803	3804	3893	3741	3880	3789	3803	3824
Biochemistry	609	607	603	673	645	649	647	606	581	575	572
Biophysics	141	110	133	108	99	91	88	90	69	72	86
Bacteriology	-	-	-	-	-	-	10	12	17	12	13
Plant Genetics	-	-	-	-	-	-	19	20	31	20	25
Plant Pathology	-	-	-	-	-	-	29	30	38	28	33
Plant Physiology	43	43	57	52	68	56	67	70	58	52	62
Botany, Other	158	148	141	144	147	146	116	126	120	121	107
Anatomy	116	144	151	147	156	163	107	103	135	86	90
Biometrics & Biostatistics	52	45	44	42	48	59	45	49	40	30	37
Cell Biology	37	33	39	44	47	41	118	123	100	130	127
Ecology	163	170	173	169	198	173	183	202	200	183	158
Hydrobiology	14	3	10	-	-	-	-	-	-	-	-
Embryology	19	15	14	18	20	10	13	15	15	9	6
Endocrinology	-	-	-	-	-	-	28	30	17	17	19
Entomology	153	146	162	161	143	170	141	156	173	170	123
Immunology	101	94	134	125	148	151	154	133	121	146	135
Molecular Biology	131	172	140	183	187	223	225	275	277	297	302
Microbiology & Bacteriology	312	349	349	365	355	324	-	-	-	-	-
Microbiology	-	-	-	-	-	-	309	346	289	326	299
Neurosciences	-	-	-	-	-	117	134	145	156	120	152
Nutritional Sciences	82	90	107	90	99	120	111	109	113	122	140
Parasitology	17	13	21	22	18	14	9	30	21	25	16
Toxicology	-	-	-	-	-	-	60	97	99	104	115
Human & Animal Genetics	-	-	-	-	-	-	95	82	105	91	114
Genetics	141	126	141	157	157	176	-	-	-	-	-
Human & Animal Pathology	99	90	85	108	106	97	97	88	110	91	124
Human & Animal Pharmacology	196	216	220	257	280	280	218	237	235	244	233
Human & Animal Physiology	321	315	314	340	327	309	246	237	244	239	245
Zoology, Other	254	231	249	226	198	199	192	158	147	155	139
Biological Sciences, General	178	191	187	209	204	196	174	190	190	213	228
Biological Sciences, Other	147	165	172	163	154	129	106	121	88	125	124
HEALTH SCIENCES	511	512	568	586	657	686	639	720	729	773	806
Audiology & Speech Pathology	146	143	139	123	140	129	113	104	99	82	107
Environmental Health	25	31	40	40	44	39	38	40	31	39	29
Public Health	-	1	-	1	4	3	54	53	103	103	96
Public Health & Epidemiology	109	98	121	127	157	159	-	-	-	-	-
Epidemiology	-	-	-	-	-	-	76	103	76	80	86
Hospital Administration	8	-	-	-	-	-	-	-	-	-	-
Nursing	32	32	53	77	89	112	126	161	183	216	214
Pharmacy	49	72	69	70	69	81	81	102	106	106	136
Veterinary Medicine	24	27	41	41	41	41	45	46	51	41	31
Health Sciences, General	18	15	19	15	24	16	20	14	13	28	19
Health Sciences, Other	100	93	86	92	89	106	86	97	67	78	88
AGRICULTURAL SCIENCES	925	1012	1009	1072	1150	1130	1172	1155	1258	1156	1112
Agricultural Economics	143	159	154	160	168	179	157	158	147	158	136
Animal Breeding & Genetics	-	-	-	-	-	-	25	28	28	25	23
Animal Husbandry	25	21	26	25	19	22	-	-	-	-	-
Animal Nutrition	101	101	112	119	149	133	56	71	78	65	82
Animal Sciences, Other	-	-	-	-	-	-	92	90	95	91	77

APPENDIX TABLE B (Continued)

	Year of Doctorate										
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Agronomy	123	137	138	151	177	159	149	137	158	159	143
Plant Breeding & Genetics	-	-	-	-	-	-	71	78	88	78	70
Plant Pathology	82	89	88	118	99	114	92	57	89	85	76
Plant Sciences, Other	-	-	-	-	-	-	16	20	21	22	20
Food Sciences	107	117	107	102	104	110	141	113	136	121	131
Soil Sciences	72	97	71	79	90	83	85	99	97	103	74
Horticulture Science	60	65	69	73	85	88	72	66	76	60	71
Fish and Wildlife	66	61	66	73	66	65	-	-	-	-	-
Fisheries Science	-	-	-	-	-	-	36	45	36	32	32
Wildlife Management	-	-	-	-	-	-	31	31	38	20	23
Forestry Science	66	88	87	80	95	78	90	94	105	88	100
Agriculture, General	6	6	7	3	5	5	7	1	5	4	5
Agriculture, Other	74	71	84	89	93	94	52	67	61	45	49
SOCIAL SCIENCES (INCL PSYCH)	6072	6039	5961	5856	6142	5836	6058	5903	5721	5847	5718
Anthropology	385	399	383	370	369	333	373	335	353	381	352
Area Studies	18	26	24	22	20	19	20	23	19	28	17
Criminology	-	-	-	30	35	36	49	41	38	24	29
Demography	-	-	-	-	-	-	26	19	25	15	26
Economics	811	778	780	745	808	737	792	767	785	835	798
Econometrics	29	23	22	22	17	24	21	27	27	25	25
Geography	155	158	129	131	109	106	121	114	120	120	111
International Relations	96	92	81	80	87	77	76	95	78	76	84
Political Science & Government	614	603	522	505	445	459	397	419	406	414	405
Public Policy Studies	-	-	-	-	-	-	69	54	70	81	80
Sociology	725	610	632	601	605	568	525	515	461	492	423
Statistics	35	46	23	33	40	43	47	39	60	65	49
Urban Studies	80	76	91	79	94	93	74	81	75	50	72
Social Sciences, General	27	33	33	32	22	34	17	17	17	36	30
Social Sciences, Other	108	140	150	108	133	149	142	127	114	128	119
PSYCHOLOGY	2989	3055	3091	3098	3358	3158	3309	3230	3073	3077	3098
Clinical	936	1061	1069	1106	1259	1167	1210	1174	1158	1146	1154
Cognitive	-	-	-	-	-	-	65	77	76	70	80
Comparative	22	20	21	8	11	12	11	13	11	14	9
Counseling	269	278	315	299	351	348	432	463	430	448	485
Developmental	203	208	221	207	201	192	219	207	175	183	200
Experimental	337	299	293	307	283	240	209	169	165	147	146
Educational	136	145	163	137	180	140	154	210	127	107	89
Industrial & Organizational	81	74	87	66	87	83	90	106	101	108	104
Personality	63	41	42	43	49	36	32	25	21	16	24
Physiological	132	126	102	108	102	90	94	73	79	73	69
Psychometrics	19	15	25	21	27	8	10	6	10	11	9
Quantitative	-	-	-	-	-	-	14	17	16	23	13
School	148	125	125	176	133	166	121	89	92	116	93
Social	202	204	216	190	180	179	191	157	167	141	133
Psychology, General	262	299	207	210	279	242	287	264	251	296	336
Psychology, Other	179	160	205	220	216	255	170	180	194	178	154
HUMANITIES	4562	4231	4141	3871	3751	3561	3500	3535	3428	3460	3504
History, American	342	321	302	285	228	271	224	240	176	197	197
History, European	261	215	218	196	166	158	168	150	143	121	122
History of Science	29	25	28	21	26	29	13	24	23	24	25
History, General	-	-	-	-	-	-	58	76	85	83	95
History, Other	329	291	281	243	272	234	153	127	116	138	148
Classics	60	67	56	54	62	60	44	57	44	51	55
Comparative Literature	152	114	144	107	132	118	124	133	133	101	121
Linguistics	190	175	156	182	176	191	164	160	176	189	200
Speech and Debate	61	69	53	63	38	38	48	41	38	30	37
Letters, General	-	-	-	-	-	-	3	14	13	19	25
Letters, Other	-	-	-	-	-	1	19	31	26	37	39
American Studies	93	82	84	81	87	64	99	76	87	68	75
Archeology	23	32	35	26	28	21	30	31	24	28	31
Art History & Criticism	152	150	166	144	158	138	150	141	137	126	143
Music	404	368	419	402	368	402	391	445	447	476	500
Philosophy	331	290	278	255	277	251	241	215	238	247	234
Religion	176	189	198	173	165	151	177	182	181	182	181
Theatre	85	102	97	94	103	94	108	101	92	88	82
LANGUAGE AND LITERATURE	1804	1662	1555	1487	1396	1260	1219	1225	1163	1164	1113
American	220	212	206	209	145	154	173	190	203	215	190
English	856	813	703	743	675	616	542	543	525	504	479
French	211	183	187	162	167	119	121	108	86	102	103
German	140	103	116	99	88	74	77	80	62	79	77
Italian	22	23	20	10	16	17	22	17	14	15	21
Spanish	199	173	181	145	184	177	161	144	145	122	133
Russian	56	52	42	32	28	24	24	33	28	28	19
Slavic	-	-	-	-	-	-	9	12	10	8	5
Chinese	-	-	-	-	-	-	16	13	14	13	13
Japanese	-	-	-	-	-	-	5	12	13	9	9
Hebrew	-	-	-	-	-	-	11	13	9	11	13
Arabic	-	-	-	-	-	-	8	8	5	9	8

	Year of Doctorate										
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Other Languages	100	103	100	87	93	79	50	52	49	49	43
Humanities, General	21	25	19	12	23	28	17	22	27	23	23
Humanities, Other	49	54	52	46	46	52	50	44	59	68	58
PROFESSIONAL FIELDS	1660	1741	1717	1634	1623	1787	1728	1922	1863	1953	2063
Business Administration	671	713	715	640	624	685	750	869	789	901	980
Accounting	-	-	-	-	-	-	163	164	150	157	161
Banking and Finance	-	-	-	-	-	-	94	123	104	126	155
Business Administration & Management	-	-	-	-	-	-	179	175	174	222	224
Business Economics	-	-	-	-	-	-	25	30	20	28	27
Marketing Management & Research	-	-	-	-	-	-	73	126	94	110	113
Business Statistics	-	-	-	-	-	-	8	7	9	3	8
Operations Research	-	-	-	-	-	-	38	46	45	46	64
Organizational Behavior	-	-	-	-	-	-	53	70	68	56	65
Business & Management, General	-	-	-	-	-	-	35	49	49	56	75
Business & Management, Other	671	713	715	640	624	685	82	79	76	97	88
COMMUNICATIONS	302	292	285	270	240	266	250	255	266	258	309
Communications Research	-	-	-	-	-	-	51	66	55	79	90
Journalism	18	22	17	17	18	18	20	17	22	18	7
Radio and Television	-	-	-	-	-	-	27	20	19	13	16
Communications, General	-	-	-	-	-	-	60	68	89	75	102
Communications, Other	284	270	268	253	222	248	92	84	81	73	94
OTHER PROFESSIONAL FIELDS	687	736	717	724	759	836	728	798	808	794	774
Architecture, Environmental Design	-	-	-	-	-	-	34	25	36	27	33
Home Economics	76	81	88	90	85	98	79	107	90	88	67
Law	27	22	24	21	28	21	19	24	25	31	27
Library & Archival Science	73	57	66	66	62	83	51	68	72	57	48
Public Administration	169	156	164	145	147	173	113	127	112	88	78
Social Work	167	173	154	179	213	218	190	231	219	237	214
Theology	155	227	193	195	201	209	225	208	236	236	253
Professional Fields, General	-	-	-	-	-	-	-	2	-	-	1
Professional Fields, Other	20	20	28	28	23	34	17	6	18	30	53
EDUCATION	7455	7194	7385	7586	7497	7251	7173	6806	6733	6643	6447
Curriculum and Instruction	759	808	874	838	815	811	861	869	825	792	761
Educational Admin & Supervision	1516	1455	1500	1536	1659	1474	1632	1569	1625	1636	1685
Educational Media	82	92	92	75	77	76	88	83	101	79	68
Educational Measures & Statistics	118	97	104	89	90	94	-	-	-	-	-
Educational Statistics & Research	-	-	-	-	-	-	86	105	74	58	73
Educational Testing, Eval & Meas	-	-	-	-	-	-	51	56	44	47	37
Educational Psychology	498	445	415	476	445	454	274	233	389	329	315
School Psychology	-	-	-	-	-	-	88	110	102	92	95
Social Foundations	230	237	242	214	209	214	142	151	135	124	114
Special Education	324	311	316	346	312	347	349	312	270	273	248
Student Counseling, Personnel Serv	662	560	607	594	549	540	506	391	397	316	315
Higher Education	715	615	683	685	671	653	634	656	589	612	568
Pre-elementary Education	-	-	-	74	90	78	63	54	65	86	73
Elementary Education	187	217	169	162	180	149	111	97	122	94	105
Junior High Education	-	-	-	-	-	-	1	-	1	1	1
Secondary Education	142	134	154	168	136	104	87	62	68	86	65
Adult & Continuing Education	173	200	169	235	233	257	221	217	207	223	204
TEACHING FIELDS	1439	1352	1411	1471	1437	1333	1327	1170	1118	1142	1065
Agricultural Education	25	35	24	39	43	35	47	47	40	39	39
Art Education	55	48	50	45	63	55	58	41	43	43	52
Business Education	65	62	66	52	50	44	62	52	52	50	36
English Education	69	80	80	76	64	67	76	72	68	79	72
Foreign Languages Education	36	39	35	36	29	31	25	25	30	37	37
Physical Educ, Health & Recreation	333	323	346	365	368	351	-	-	-	-	-
Health Education	-	-	-	-	-	-	99	93	89	81	91
Home Economics Education	31	26	29	27	25	33	25	26	21	17	17
Industrial Arts Education	39	43	29	27	27	39	19	27	13	20	24
Mathematics Education	98	57	85	74	62	50	62	64	65	72	74
Music Education	89	85	88	110	76	103	112	92	81	94	109
Nursing Education	-	-	-	41	23	25	17	21	21	40	36
Physical Education	-	-	-	-	-	-	235	219	220	210	192
Reading Education	134	142	151	160	193	153	169	142	113	134	94
Science Education	128	101	93	96	107	86	78	77	88	65	63
Social Science Education	49	46	65	52	49	29	39	22	24	22	17
Speech Education	14	20	16	10	12	12	2	10	7	5	5
Trade & Industrial Education	211	197	201	229	213	191	138	117	82	86	69
Other Teaching Fields	63	48	53	32	33	29	64	23	61	48	38
Education, General	396	425	410	427	405	419	349	311	293	355	369
Education, Other	214	246	239	196	189	248	303	360	308	298	286
OTHER AND UNSPECIFIED	24	14	23	22	35	24	22	15	25	26	9

SOURCE: National Research Council, Office of Scientific and Engineering Personnel, Doctorate Records File.

Form Approved
OMB No. 3145-0019
Approval Expires 3/89

SURVEY OF EARNED DOCTORATES 1986-87

This form is to be returned to the GRADUATE DEAN, for forwarding to .....

The Office of Scientific and Engineering Personnel
National Research Council
2101 Constitution Avenue, Washington, D.C. 20418

Please print or type.

1. Name in full: _____ *Last Name* _____ *First Name* _____ *Middle Name*

Cross Reference: Maiden name or former name legally changed _____

2. Permanent address through which you could always be reached: (Care of, if applicable) _____

Number _____ *Street* _____ *City* _____

State _____ *Zip Code* _____ *Or Country if not U.S.* _____

3. U.S. Social Security Number: _ _ _ — _ _ — _ _ _ _

4. Date of birth: _____ *Month Day Year* Place of birth: _____ *State* _____ *Or Country if not U.S.*

5. Sex: 1 ☐ Male 2 ☐ Female

6. Marital status: 1 ☐ Married
2 ☐ Not married (including widowed, divorced)

7. Citizenship:
0 ☐ U.S. native
1 ☐ U.S. naturalized
2 ☐ Non-U.S., Immigrant (Permanent Resident)
_____ *(country of present citizenship)*
3 ☐ Non-U.S., Non-Immigrant (Temporary Resident)
_____ *(country of present citizenship)*

8. Are you physically handicapped? ☐ Yes ☐ No
If yes, is it: 1 ☐ Visual 2 ☐ Orthopedic
3 ☐ Auditory 4 ☐ Vocal
5 ☐ Other (Specify) _____

9. What is your racial background? (Check only one)
0 ☐ American Indian or Alaskan Native
1 ☐ Asian or Pacific Islander
2 ☐ Black
3 ☐ White

10a. Is your ethnic heritage Hispanic? ☐ Yes ☐ No

10b. If yes, is it: 0 ☐ Mexican American
1 ☐ Puerto Rican
2 ☐ Other Hispanic

11. Number of dependents: _____ Do not include yourself. (Dependent = someone receiving at least one half of his or her support from you)

EDUCATION

12. Location of high school last attended: _____ *State* _____ *Or Country if not U.S.*

Year of graduation from high school: _____

13. List in the table below all collegiate and graduate institutions you have attended including 2-year colleges and each degree earned. List chronologically, and include your doctoral institution as the last entry.

Institution Name	Location	Years Attended From	Years Attended To	Major Field Use Specialties List Name	Major Field Use Specialties List Number	Degree (if any) Title of Degree	Degree (if any) Granted Mo.	Degree (if any) Granted Yr.

14. Since you received your first baccalaureate degree (or equivalent), how many years*, including years spent on thesis and/or dissertation, were you:
1 a full-time student: _____
2 a part-time student: _____
3 not working on degree: _____
*Count academic years as full calendar years. Total should sum to period of years elapsed between baccalaureate and doctorate.

15. Enter below the title of your doctoral dissertation and the most appropriate classification number and field. If a project report or a musical or literary composition (not a dissertation) is a degree requirement, please check box. ☐

Title _____ Classify using Specialties List

_____ Number _____ Name of field _____

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continued on next page

16. Name the department (or interdisciplinary committee, center, institute, etc.) and school or college of the university which supervised your doctoral program: _____
Department/Institute/Committee/Program *School*

17. Name of your adviser for dissertation, project report or music/literary composition: _____
Last Name *First Name* *Middle Initial*

18. What is your best estimate of the percentage of support received from the following sources during the course of your graduate study? (Total should equal 100%)

	%
Own/Family Resources	
a ___ Own Earnings	
b ___ Spouse's Earnings	
c ___ Family Contributions	
University-Related	
d ___ Teaching Assistantship	
e ___ Research Assistantship	
f ___ University Fellowship	
g ___ College Work-Study	
h ___ Other _____ (Specify)	
Research Assistant	
i ___ NSF	
j ___ NIH	
k ___ Other Federal	
Federal Support	
l ___ NIH Traineeship	
m ___ Other HHS	
n ___ Title VI Foreign Language and Area Studies Fellowship	
o ___ Graduate & Professional Opportunities Program Fellowship (G*POP)	
3 ___ NSF Fellowship	
p ___ Other Dept of Ed	
q ___ Veterans Administration (G.I. Bill, etc.)	
r ___ Other Federal _____ (Specify)	
U.S. Nationally Competitive Fellowships (Non-Federal)	
s ___ Ford Foundation	
t ___ Rockefeller Foundation	
u ___ Other Fellowship _____ (Specify)	
Student Loans	
v ___ Guaranteed Student Loan	
w ___ National Direct Student Loan	
x ___ Other Loan _____ (Specify)	
Other Sources	
y ___ Business/Employer Funds	
z ___ Foreign (Non-U.S.) Govt	
& ___ Other _____ (Specify)	

19. When you receive your doctorate degree, will you have any debt directly related to your undergraduate and/or graduate education (tuition and fees, living expenses, books and supplies, transportation to and from school)?
Yes _____ No _____
If yes, what will be the level of this cumulative debt?
1 ☐ $5,000 or less
2 ☐ $5,001-$10,000
3 ☐ $10,001-$20,000
4 ☐ $20,001-$30,000
5 ☐ $30,001 or more

20a. Please check the category which most fully describes your status during the year immediately preceding the award of the doctorate.
0 ☐ Full-time employed (Go to item "20b")
1 ☐ Held fellowship
2 ☐ Held assistantship
3 ☐ Part-time employed
4 ☐ Not employed
5 ☐ Other (specify) _____

20b. If full-time employed, what type of position did you hold?
6 ☐ College or university, faculty
7 ☐ College or university, non-faculty
8 ☐ Elem. or sec. school, teaching
9 ☐ Elem. or sec. school, non-teaching
(11) ☐ Industry or business
(12) ☐ Other (specify) _____

POSTGRADUATION PLANS

21. What is the status of your current postgraduate plans?
0 ☐ Am returning to, or continuing in, predoctoral employment
1 ☐ Have signed contract or made definite commitment
2 ☐ Am negotiating with one or more specific organizations
3 ☐ Am seeking position but have no specific prospects
4 ☐ Other (specify) _____

22. What best describes your immediate postgraduate plans?
0 ☐ Postdoctoral fellowship
1 ☐ Postdoctoral research associateship
2 ☐ Traineeship
} Go to Item "23"
3 ☐ Other study (specify) _____
4 ☐ Employment (other than 0,1,2,3)
5 ☐ Military service
6 ☐ Other (specify) _____
} Go to Item "24"

23. If you plan to have a postdoctoral fellowship, associateship, traineeship, or otherwise undertake further study

A. What will be the field of your postdoctoral study? Please enter number from Specialties List _____

B. What will be the primary source of research support?
0 ☐ U.S. Government
1 ☐ College or university
2 ☐ Private foundation
3 ☐ Nonprofit, other than private foundation
4 ☐ Other (specify) _____
6 ☐ Unknown
Go to Item "25"

24. If you plan to be employed, enter military service, or other—

A. What will be the type of employer?
a ☐ U.S. 4-year college or university other than medical school
b ☐ Foreign university
c ☐ Medical school
d ☐ Jr. or community college
e ☐ Elem. or sec. school
f ☐ Foreign government
g ☐ U.S. Federal government
h ☐ U.S. state government
i ☐ U.S. local government
j ☐ Nonprofit organization
k ☐ Industry or business
l ☐ Self-employed
m ☐ Other (specify) _____

B. Indicate what your **primary** work activity will be with "1" in appropriate box; **secondary** work activity (if any) with "2" in appropriate box.
0 ☐ Research and development
1 ☐ Teaching
2 ☐ Administration
3 ☐ Professional services to individuals
5 ☐ Other (specify) _____

C. In what field will you be working? Please enter number from Specialties List _____

25. What is the name and address of the organization with which you will be associated?

_____
Name of Organization

_____
Street *City, State* *Or Country if not U.S.*

BACKGROUND INFORMATION

26. Please indicate, by circling the highest grade attained, the education of

		Elementary School								High School				College				Graduate		Postdoctoral
your father:	none	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	MA, MD	PhD	
your mother:	none 0	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	MA, MD	PhD	Postdoctoral
		1			2			3		4			5	6			7	8	9	(11)

Signature _____ Date _____

If you would like to receive a summary of the results of this survey, please check box. ☐

SPECIALTIES LIST

Instructions: The following field listing is to be used in responding to items 13, 15, 23A, and 24C. If a field marked with an asterisk (*) is chosen in item 13 or 15, please write in your field of specialization in the space provided.

AGRICULTURE

000 Agricultural Economics

005 Animal Breeding & Genetics
010 Animal Nutrition
019 Animal Sciences, Other*

020 Agronomy
025 Plant Breeding & Genetics
030 Plant Path. (See also 120)
039 Plant Sciences, Other*

040 Food Sciences
045 Soil Sciences
050 Horticulture Science
055 Fisheries Sciences
060 Wildlife Management
065 Forestry Science

098 Agriculture, General
099 Agriculture, Other*

BIOLOGICAL SCIENCES

100 Biochemistry
105 Biophysics

110 Bacteriology
115 Plant Genetics
120 Plant Path. (See also 030)
125 Plant Physiology
129 Botany, Other*

130 Anatomy
133 Biometrics & Biostatistics
136 Cell Biology
139 Ecology
142 Embryology
145 Endocrinology
148 Entomology
151 Immunology
154 Molecular Biology
157 Microbiology
160 Neurosciences
163 Nutritional Sciences
166 Parasitology
169 Toxicology
170 Genetics, Human & Animal
175 Pathology, Human & Animal
180 Pharmacology, Human & Animal
185 Physiology, Human & Animal
189 Zoology, Other*

198 Biological Sciences, General
199 Biological Sciences, Other*

HEALTH SCIENCES

200 Audiology & Speech Pathology
210 Environmental Health
215 Public Health
220 Epidemiology
230 Nursing
240 Pharmacy
250 Veterinary Medicine
298 Health Sciences, General
299 Health Sciences, Other*

ENGINEERING

300 Aerospace, Aeronautical & Astronautical
303 Agricultural
306 Bioengineering & Biomedical
309 Ceramic
312 Chemical
315 Civil
318 Communications
321 Computer
324 Electrical, Electronics
327 Engineering Mechanics
330 Engineering Physics
333 Engineering Science
336 Environmental Health Engin.
339 Industrial
342 Materials Science
345 Mechanical
348 Metallurgical
351 Mining & Mineral
354 Naval Arch. & Marine Engin.
357 Nuclear
360 Ocean
363 Operations Research (See also 465, 930)
366 Petroleum
369 Polymer
372 Systems
398 Engineering, General
399 Engineering, Other*

COMPUTER AND INFORMATION SCIENCES

400 Computer Sciences*
410 Information Sci. & Systems*

MATHEMATICS

420 Applied Mathematics
425 Algebra
430 Analysis & Functional Anal.
435 Geometry
440 Logic (See also 785)
445 Number Theory
450 Probability & Math. Statistics (See also 690)
455 Topology
460 Computing Theory & Practice
465 Operations Research (See also 363, 930)
498 Mathematics, General
499 Mathematics, Other*

PHYSICAL SCIENCES

Astronomy

500 Astronomy
505 Astrophysics

Atmospheric & Meteorological Sciences

510 Atmospheric Physics & Chem.
512 Atmospheric Dynamics
514 Meteorology
518 Atmos. & Meteorol. Sci., Gen.
519 Atmos. & Meteorol. Sci., Other*

Chemistry

520 Analytical
522 Inorganic
524 Nuclear
526 Organic
528 Pharmaceutical
530 Physical
532 Polymer
534 Theoretical
538 Chemistry, General
539 Chemistry, Other*

Geological Sciences

540 Geology
542 Geochemistry
544 Geophysics & Seismology
546 Paleontology
548 Mineralogy, Petrology
550 Stratigraphy, Sedimentation
552 Geomorphology & Glacial Geology
554 Applied Geology
558 Geological Sciences, General
559 Geological Sciences, Other*

Physics

560 Acoustics
561 Atomic & Molecular
562 Electron
564 Elementary Particle
566 Fluids
568 Nuclear
569 Optics
570 Plasma
572 Polymer
574 Solid State
578 Physics, General
579 Physics, Other*

Other Physical Sciences

580 Environmental Sciences
585 Hydrology & Water Resources
590 Oceanography
595 Marine Sciences
599 Physical Sciences, Other*

PSYCHOLOGY

600 Clinical
603 Cognitive
606 Comparative
609 Counseling
612 Developmental
615 Experimental
618 Educational (See also 822)
621 Industrial & Organizational (See also 935)
624 Personality
627 Physiological
630 Psychometrics
633 Quantitative
636 School (See also 825)
639 Social
648 Psychology, General
649 Psychology, Other*

SOCIAL SCIENCES

650 Anthropology
652 Area Studies
658 Criminology
662 Demography
666 Economics
668 Econometrics
670 Geography
674 International Relations
678 Political Sci. & Government
682 Public Policy Studies
686 Sociology
690 Statistics (See also 450)
694 Urban Studies
698 Social Sciences, General
699 Social Sciences, Other*

HUMANITIES

History

700 History, American
705 History, European
710 History of Science
718 History, General
719 History, Other*

Letters

720 Classics
723 Comparative Literature
729 Linguistics
732 Literature, American
733 Literature, English
734 English Language
736 Speech & Debate
738 Letters, General
739 Letters, Other*

Foreign Languages and Literature

740 French
743 German
746 Italian
749 Spanish
752 Russian
755 Slavic (other than Russian)
758 Chinese
762 Japanese
765 Hebrew
768 Arabic
769 Other Languages*

Other Humanities

770 American Studies
773 Archeology
776 Art History & Criticism
780 Music
785 Philosophy (See also 440)
790 Religion (See also 984)
795 Theatre
798 Humanities, General
799 Humanities, Other*

EDUCATION

800 Curriculum & Instruction
805 Educ. Admin. & Superv.
810 Educational Media
815 Educ. Stat. & Research
820 Educ. Testing, Eval. & Meas.
822 Educational Psychology (See also 618)
825 School Psych. (See also 636)
830 Social Foundations
835 Special Education
840 Student Counseling & Personnel Services
845 Higher Education

Teacher Education

850 Pre-elementary
852 Elementary
854 Junior High
856 Secondary
858 Adult & Continuing

Teaching Fields

860 Agricultural Educ.
861 Art Educ.
862 Business Educ.
864 English Educ.
866 Foreign Languages Educ.
868 Health Educ.
870 Home Economics Educ.
872 Industrial Arts Educ.
874 Mathematics Educ.
876 Music Educ.
878 Nursing Educ.
880 Physical Educ.
882 Reading Educ.
884 Science Educ.
885 Social Science Educ.
886 Speech Educ.
888 Trade & Industrial Educ.
889 Teacher & Educ. Specific Subject Areas, Other*

898 Education, General
899 Education, Other*

PROFESSIONAL FIELDS

Business & Management

900 Accounting
905 Banking & Finance
910 Business Admin. & Management
915 Business Economics
920 Marketing Mngmnt. & Research
925 Business Statistics
930 Operations Research (See also 363, 465)
935 Organiz. Beh. (See also 621)
938 Business & Mngmnt., General
939 Business & Mngmnt., Other*

Communications

940 Communications Research
945 Journalism
950 Radio & Television
958 Communications, General
959 Communications, Other*

Other Professional Fields

960 Architec. & Environ. Design
964 Home Economics
968 Law
972 Library & Archival Science
976 Public Administration
980 Social Work
984 Theology (See also 790)
988 Professional Fields, General
989 Professional Fields, Other*

999 OTHER FIELDS*

CODE NUMBERS FOR FIELDS DISPLAYED IN:

TABLE 2

Physics and Astronomy (500-505, 560-579)
Chemistry (520-539)
Earth, Atmospheric and Marine Sciences (510-519, 540-559, 580-599)
Physical Sciences Subtotal (500-599)

Mathematics (420-499)
Computer Sciences (400-410)
Engineering (300-399)
EMP Total (300-599)

Biochemistry (100)
Other Biosciences (105-199)
Biosciences Subtotal (100-199)

Health Sciences (200-299)
Agricultural Sciences (000-099)
Life Sciences Total (000-299)

Psychology (600-649)
Economics and Econometrics (666, 668)
Anthropology and Sociology (650, 686)
Political Science and International Relations (674, 678)
Other Social Sciences (652-662, 670, 682, 690-699)
Social Sciences Total (600-699)

Total Sciences (000-699)

History (700-719)
English and American Language and Literature (732-734)
Foreign Languages and Literature (740-769)
Other Humanities (720-729, 736-739, 770-799)
Humanities Total (700-799)

Education (800-899)

Business and Management (900-939)
Other Professional Fields (940-989)

Total Non-Sciences (700-989)

Other or Unspecified (999)

TABLE 6

Physics and Astronomy (500-505, 560-579)
Chemistry (520-539)
Earth, Atmospheric, and Marine Sciences (510-519, 540-559, 580-599)

Mathematics and Computer Sciences (400-499)
Engineering (300-399)

Biosciences (100-199)
Health Sciences (200-299)
Agricultural Sciences (000-099)

Psychology (600-649)
Other Social Sciences (650-699)

History (700-719)
English and American Language and Literature (732-734)
Other Humanities (720-729, 736-799)

Education (800-899)
Professional and Other Fields (900-999)

TITLES OF DEGREES INCLUDED IN THE SURVEY OF EARNED DOCTORATES

DAS	Doctor of Applied Science
DArch	Doctor of Architecture
DA	Doctor of Arts
DBA	Doctor of Business Administration
JCD	Doctor of Canon Law
DCJ	Doctor of Criminal Justice
DCrim	Doctor of Criminology
EdD	Doctor of Education
DEng	Doctor of Engineering
DESc	Doctor of Engineering Science
ScDE	Doctor of Engineering Science
DEnv	Doctor of Environment
DED	Doctor of Environmental Design
DFA	Doctor of Fine Arts
DF	Doctor of Forestry
DGS	Doctor of Geological Science
DHS	Doctor of Health and Safety
DHL	Doctor of Hebrew Literature
DHS	Doctor of Hebrew Studies
DIT	Doctor of Industrial Technology
SJD	Doctor of Juridical Science
JSD	Doctor of Juristic Science
DLS	Doctor of Library Science
DMSc	Doctor of Medical Science
DMin/DM	Doctor of Ministry
DM	Doctor of Music
DMA	Doctor of Musical Arts
DME	Doctor of Music Education
DML	Doctor of Modern Languages
DNSc	Doctor of Nursing Science
PhD	Doctor of Philosophy
DPE	Doctor of Physical Education
DPS	Doctor of Professional Studies
DPA	Doctor of Public Administration
DPH	Doctor of Public Health
DRec/DR	Doctor of Recreation
DRE	Doctor of Religious Education
DSM	Doctor of Sacred Music
STD	Doctor of Sacred Theology
DSc	Doctor of Science
DScH	Doctor of Science and Hygiene
LScD	Doctor of Science and Law
DScD	Doctor of Science in Dentistry
DScVM	Doctor of Science in Veterinary Medicine
DSSc	Doctor of Social Science
DSW	Doctor of Social Work
ThD	Doctor of Theology